POWERCUT-1500

PLASMA ARC CUTTING PACKAGE

F15-695-C 10 / 2003

BE SURE THIS INFORMATION REACHES THE OPERATOR.
YOU CAN GET EXTRA COPIES THROUGH YOUR SUPPLIER.

CAUTION

These INSTRUCTIONS are for experienced operators. If you are not fully familiar with the principles of operation and safe practices for arc welding and cutting equipment, we urge you to read our booklet, "Precautions and Safe Practices for Arc Welding, Cutting, and Gouging," Form 52-529. Do NOT permit untrained persons to install, operate, or maintain this equipment. Do NOT attempt to install or operate this equipment until you have read and fully understand these instructions. If you do not fully understand these instructions, contact your supplier for further information. Be sure to read the Safety Precautions before installing or operating this equipment.

USER RESPONSIBILITY

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically. Malfunctioning or poorly maintained equipment should not be used. Parts that are broken, missing, worn, distorted or contaminated should be replaced immediately. Should such repair or replacement become necessary, the manufacturer recommends that a telephone or written request for service advice be made to the Authorized Distributor from whom it was purchased.

This equipment or any of its parts should not be altered without the prior written approval of the manufacturer. The user of this equipment shall have the sole responsibility for any malfunction which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than the manufacturer or a service facility designated by the manufacturer.

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WARNING: These Safety Precautions are for your protection. They summarize precautionary information from the references listed in Additional Safety Information section. Before performing any installation or operating procedures, be sure to read and follow the safety precautions listed below as well as all other manuals, material safety data sheets, labels, etc. Failure to observe Safety Precautions can result in injury or death.

PROTECT YOURSELF AND OTHERS -- Some welding, cutting, and gouging processes are noisy and require ear protection. The arc, like the sun, emits ultraviolet (UV) and other radiation and can injure skin and eyes. Hot metal can cause burns. Training in the proper use of the processes and equipment is essential to prevent accidents. Therefore:

1. Always wear safety glasses with side shields in any work area, even if welding helmets, face shields, and goggles are also required.
2. Use a face shield fitted with the correct filter and cover plates to protect your eyes, face, neck, and ears from sparks and rays of the arc when operating or observing operations. Warn bystanders not to watch the arc and not to expose themselves to the rays of the electric-arc or hot metal.
3. Wear flameproof gauntlet type gloves, heavy long-sleeve shirt, cuffless trousers, high-topped shoes, and a welding helmet or cap for hair protection, to protect against arc rays and hot sparks or hot metal. A flameproof apron may also be desirable as protection against radiated heat and sparks.
4. Hot sparks or metal can lodge in rolled up sleeves, trouser cuffs, or pockets. Sleeves and collars should be kept buttoned, and open pockets eliminated from the front of clothing
5. Protect other personnel from arc rays and hot sparks with a suitable non-flammable partition or curtains.
6. Use goggles over safety glasses when chipping slag or grinding. Chipped slag may be hot and can fly far. Bystanders should also wear goggles over safety glasses.

FIRES AND EXPLOSIONS -- Heat from flames and arcs can start fires. Hot slag or sparks can also cause fires and explosions. Therefore:

1. Remove all combustible materials well away from the work area or cover the materials with a protective non-flammable covering. Combustible materials include wood, cloth, sawdust, liquid and gas fuels, solvents, paints and coatings, paper, etc.
2. Hot sparks or hot metal can fall through cracks or crevices in floors or wall openings and cause a hidden smoldering fire or fires on the floor below. Make certain that such openings are protected from hot sparks and metal.“
3. Do not weld, cut or perform other hot work until the workpiece has been completely cleaned so that there are no substances on the workpiece which might produce flammable or toxic vapors. Do not do hot work on closed containers. They may explode.
4. Have fire extinguishing equipment handy for instant use, such as a garden hose, water pail, sand bucket, or portable fire extinguisher. Be sure you are trained in its use.
5. Do not use equipment beyond its ratings. For example, overloaded welding cable can overheat and create a fire hazard.
6. After completing operations, inspect the work area to make certain there are no hot sparks or hot metal which could cause a later fire. Use fire watchers when necessary.
7. For additional information, refer to NFPA Standard 51B, "Fire Prevention in Use of Cutting and Welding Processes", available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

ELECTRICAL SHOCK -- Contact with live electrical parts and ground can cause severe injury or death. DO NOT use AC welding current in damp areas, if movement is confined, or if there is danger of falling.

1. Be sure the power source frame (chassis) is connected to the ground system of the input power.
2. Connect the workpiece to a good electrical ground.
3. Connect the work cable to the workpiece. A poor or missing connection can expose you or others to a fatal shock.
4. Use well-maintained equipment. Replace worn or damaged cables.
5. Keep everything dry, including clothing, work area, cables, torch/electrode holder, and power source.
6. Make sure that all parts of your body are insulated from work and from ground.
7. Do not stand directly on metal or the earth while working in tight quarters or a damp area; stand on dry boards or an insulating platform and wear rubber-soled shoes.
8. Put on dry, hole-free gloves before turning on the power.
9. Turn off the power before removing your gloves.
10. Refer to ANSI/ASC Standard Z49.1 (listed on next page) for specific grounding recommendations. Do not mistake the work lead for a ground cable.

ELECTRIC AND MAGNETIC FIELDS — May be dangerous. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding and cutting current creates EMF around welding cables and welding machines. Therefore:

1. Welders having pacemakers should consult their physician before welding. EMF may interfere with some pacemakers.
2. Exposure to EMF may have other health effects which are unknown.
3. Welders should use the following procedures to minimize exposure to EMF:
   A. Route the electrode and work cables together. Secure them with tape when possible.
   B. Never coil the torch or work cable around your body.
   C. Do not place your body between the torch and work cables. Route cables on the same side of your body.
   D. Connect the work cable to the workpiece as close as possible to the area being welded.
   E. Keep welding power source and cables as far away from your body as possible.

FUMES AND GASES -- Fumes and gases, can cause discomfort or harm, particularly in confined spaces. Do not breathe fumes and gases. Shielding gases can cause asphyxiation. Therefore:

1. Always provide adequate ventilation in the work area by natural or mechanical means. Do not weld, cut, or gouge on materials such as galvanized steel, stainless steel, copper, zinc, lead, beryllium, or cadmium unless positive mechanical ventilation is provided. Do not breathe fumes from these materials.
2. Do not operate near degreasing and spraying operations. The heat or arc rays can react with chlorinated hydrocarbon vapors to form phosgene, a highly toxic gas, and other irritant gases.
3. If you develop momentary eye, nose, or throat irritation while operating, this is an indication that ventilation is not adequate. Stop work and take necessary steps to improve ventilation in the work area. Do not continue to operate if physical discomfort persists.
4. Refer to ANSI/ASC Standard Z49.1 (see listing below) for specific ventilation recommendations.
5. **WARNING: This product, when used for welding or cutting, produces fumes or gases which contain chemicals known to the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code §25249.5 et seq.)**

CYLINDER HANDLING -- Cylinders, if mishandled, can rupture and violently release gas. Sudden rupture of cylinder, valve, or relief device can injure or kill. Therefore:

1. Use the proper gas for the process and use the proper pressure reducing regulator designed to operate from the compressed gas cylinder. Do not use adaptors. Maintain hoses and fittings in good condition. Follow manufacturer's operating instructions for mounting regulator to a compressed gas cylinder.
2. Always secure cylinders in an upright position by chain or strap to suitable hand trucks, undercarriages, benches, walls, post, or racks. Never secure cylinders to work tables or fixtures where they may become part of an electrical circuit.
3. When not in use, keep cylinder valves closed. Have valve protection cap in place if regulator is not connected. Secure and move cylinders by using suitable hand trucks. Avoid rough handling of cylinders.
4. Locate cylinders away from heat, sparks, and flames. Never strike an arc on a cylinder.
5. For additional information, refer to CGA Standard P-1, "Precautions for Safe Handling of Compressed Gases in Cylinders", which is available from Compressed Gas Association, 1235 Jefferson Davis Highway, Arlington, VA 22202.

EQUIPMENT MAINTENANCE -- Faulty or improperly maintained equipment can cause injury or death. Therefore:

1. Always have qualified personnel perform the installation, troubleshooting, and maintenance work. Do not perform any electrical work unless you are qualified to perform such work.
2. Before performing any maintenance work inside a power source, disconnect the power source from the incoming electrical power.
3. Maintain cables, grounding wire, connections, power cord, and power supply in safe working order. Do not operate any equipment in faulty condition.
4. Do not abuse any equipment or accessories. Keep equipment away from heat sources such as furnaces, wet conditions such as water puddles, oil or grease, corrosive atmospheres and inclement weather.
5. Keep all safety devices and cabinet covers in position and in good repair.
6. Use equipment only for its intended purpose. Do not modify it in any manner.

ADDITIONAL SAFETY INFORMATION -- For more information on safe practices for electric arc welding and cutting equipment, ask your supplier for a copy of "Precautions and Safe Practices for Arc Welding, Cutting and Gouging", Form 52-529.

The following publications, which are available from the American Welding Society, 550 N.W. LeJuene Road, Miami, FL 33126, are recommended to you:

1. ANSI/ASC Z49.1 - "Safety in Welding and Cutting"
2. AWS C5.1 - "Recommended Practices for Plasma Arc Welding"
3. AWS C5.2 - "Recommended Practices for Plasma Arc Cutting"
4. AWS C5.3 - "Recommended Practices for Air Carbon Arc Gouging and Cutting"
5. AWS C5.5 - "Recommended Practices for Gas Tungsten Arc Welding"
6. AWS C5.6 - "Recommended Practices for Gas Metal Arc Welding""
7. AWS SP - "Safe Practices" - Reprint, Welding Handbook.
8. ANSI/AWS F4.1, "Recommended Safe Practices for Welding and Cutting of Containers That Have Held Hazardous Substances."

MEANING OF SYMBOLS - As used throughout this manual: Means Attention! Be Alert! Your safety is involved.

DANGER **Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.**

WARNING **Means potential hazards which could result in personal injury or loss of life.**

CAUTION **Means hazards which could result in minor personal injury.**

ADVERTENCIA: Estas Precauciones de Seguridad son para su protección. Ellas hacen resumen de información proveniente de las referencias listadas en la sección "Información Adicional Sobre La Seguridad". Antes de hacer cualquier instalación o procedimiento de operación , asegúrese de leer y seguir las precauciones de seguridad listadas a continuación así como también todo manual, hoja de datos de seguridad del material, calcomanias, etc. El no observar las Precauciones de Seguridad puede resultar en daño a la persona o muerte.

PROTEJASE USTED Y A LOS DEMAS-- Algunos procesos de soldadura, corte y ranurado son ruidosos y requiren protección para los oídos. El arco, como el sol , emite rayos ultravioleta (UV) y otras radiaciones que pueden dañar la piel y los ojos. El metal caliente causa quemaduras. EL entrenamiento en el uso propio de los equipos y sus procesos es esencial para prevenir accidentes. Por lo tanto:

1. Utilice gafas de seguridad con protección a los lados siempre que esté en el área de trabajo, aún cuando esté usando careta de soldar, protector para su cara u otro tipo de protección.
2. Use una careta que tenga el filtro correcto y lente para proteger sus ojos, cara, cuello, y oídos de las chispas y rayos del arco cuando se esté operando y observando las operaciones. Alerte a todas las personas cercanas de no mirar el arco y no exponerse a los rayos del arco eléctrico o el metal fundido.
3. Use guantes de cuero a prueba de fuego, camisa pesada de mangas largas, pantalón de ruedo liso, zapato alto al tobillo, y careta de soldar con capucha para el pelo, para proteger el cuerpo de los rayos y chispas calientes provenientes del metal fundido. En ocaciones un delantal a prueba de fuego es necesario para protegerse del calor radiado y las chispas.
4. Chispas y partículas de metal caliente puede alojarse en las mangas enrolladas de la camisa , el ruedo del pantalón o los bolsillos. Mangas y cuellos deberán mantenerse abotonados, bolsillos al frente de la camisa deberán ser cerrados o eliminados.
5. Proteja a otras personas de los rayos del arco y chispas calientes con una cortina adecuada no-flamable como división.
6. Use careta protectora además de sus gafas de seguridad cuando esté removiendo escoria o puliendo. La escoria puede estar caliente y desprenderse con velocidad. Personas cercanas deberán usar gafas de seguridad y careta protectora.

FUEGO Y EXPLOSIONES -- El calor de las flamas y el arco pueden ocacionar fuegos. Escoria caliente y las chispas pueden causar fuegos y explosiones. Por lo tanto:

1. Remueva todo material combustible lejos del área de trabajo o cubra los materiales con una cobija a prueba de fuego. Materiales combustibles incluyen madera, ropa, líquidos y gases flamables, solventes, pinturas, papel, etc.
2. Chispas y partículas de metal pueden introducirse en las grietas y agujeros de pisos y paredes causando fuegos escondidos en otros niveles o espacios. Asegúrese de que toda grieta y agujero esté cubierto para proteger lugares adyacentes contra fuegos.
3. No corte, suelde o haga cualquier otro trabajo relacionado hasta que la pieza de trabajo esté totalmente limpia y libre de substancias que puedan producir gases inflamables o vapores tóxicos. No trabaje dentro o fuera de contenedores o tanques cerrados. Estos pueden explotar si contienen vapores inflamables.
4. Tenga siempre a la mano equipo extintor de fuego para uso instantáneo, como por ejemplo una manguera con agua, cubeta con agua, cubeta con arena, o extintor portátil. Asegúrese que usted esta entrenado para su uso.
5. No use el equipo fuera de su rango de operación. Por ejemplo, el calor causado por cable sobrecarga en los cables de soldar pueden ocasionar un fuego.
6. Después de termirar la operación del equipo, inspeccione el área de trabajo para cerciorarse de que las chispas o metal caliente ocasionen un fuego más tarde. Tenga personal asignado para vigilar si es necesario.
7. Para información adicional , haga referencia a la publicación NFPA Standard 51B, "Fire Prevention in Use of Cutting and Welding Processes", disponible a través de la National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

CHOQUE ELECTRICO -- El contacto con las partes eléctricas energizadas y tierra puede causar daño severo o muerte. NO use soldadura de corriente alterna (AC) en áreas húmedas, de movimiento confinado en lugares estrechos o si hay posibilidad de caer al suelo.

1. Asegúrese de que el chasis de la fuente de poder esté conectado a tierra através del sistema de electricidad primario.
2. Conecte la pieza de trabajo a un buen sistema de tierra física.
3. Conecte el cable de retorno a la pieza de trabajo. Cables y conductores expuestos o con malas conexiones pueden exponer al operador u otras personas a un choque eléctrico fatal.
4. Use el equipo solamente si está en buenas condiciones. Reemplaze cables rotos, dañados o con conductores expuestos.
5. Mantenga todo seco, incluyendo su ropa, el área de trabajo, los cables, antorchas, pinza del electrodo, y la fuente de poder.
6. Asegúrese que todas las partes de su cuerpo están insuladas de ambos, la pieza de trabajo y tierra.
7. No se pare directamente sobre metal o tierra mientras trabaja en lugares estrechos o áreas húmedas; trabaje sobre un pedazo de madera seco o una plataforma insulada y use zapatos con suela de goma.
8. Use guantes secos y sin agujeros antes de energizar el equipo.
9. Apage el equipo antes de quitarse sus guantes.
10. Use como referencia la publicación ANSI/ASC Standard Z49.1 (listado en la próxima página) para recomendaciones específicas de como conectar el equipo a tierra. No confunda el cable de soldar a la pieza de trabajo con el cable a tierra.

CAMPOS ELECTRICOS Y MAGNETICOS - Son peligrosos. La corriente eléctrica fluye através de cualquier conductor causando a nivel local Campos Eléctricos y Magnéticos (EMF). Las corrientes en el área de corte y soldadura, crean EMF alrrededor de los cables de soldar y las maquinas. Por lo tanto:

1. Soldadores u Operadores que use marca-pasos para el corazón deberán consultar a su médico antes de soldar. El Campo Electromagnético (EMF) puede interferir con algunos marca-pasos.
2. Exponerse a campos electromagnéticos (EMF) puede causar otros efectos de salud aún desconocidos.
3. Los soldadores deberán usar los siguientes procedimientos para minimizar exponerse al EMF:
   A. Mantenga el electrodo y el cable a la pieza de trabajo juntos, hasta llegar a la pieza que usted quiere soldar. Asegúrelos uno junto al otro con cinta adhesiva cuando sea posible.
   B. Nunca envuelva los cables de soldar alrededor de su cuerpo.
   C. Nunca ubique su cuerpo entre la antorcha y el cable, a la pieza de trabajo. Mantega los cables a un sólo lado de su cuerpo.
   D. Conecte el cable de trabajo a la pieza de trabajo lo más cercano posible al área de la soldadura.
   E. Mantenga la fuente de poder y los cables de soldar lo más lejos posible de su cuerpo.

HUMO Y GASES -- El humo y los gases, pueden causar malestar o daño, particularmente en espacios sin ventilación. No inhale el humo o gases. El gas de protección puede causar falta de oxígeno.

Por lo tanto:

1. Siempre provea ventilación adecuada en el área de trabajo por medio natural o mecánico. No solde, corte, o ranure materiales con hierro galvanizado, acero inoxidable, cobre, zinc, plomo, berílio, o cadmio a menos que provea ventilación mecánica positiva . No respire los gases producidos por estos materiales.
2. No opere cerca de lugares donde se aplique substancias químicas en aerosol. El calor de los rayos del arco pueden reaccionar con los vapores de hidrocarburo clorinado para formar un fosfógeno, o gas tóxico, y otros irritant es.
3. Si momentáneamente desarrolla inrritación de ojos, nariz o garganta mientras est á operando, es indicación de que la ventilación no es apropiada. Pare de trabajar y tome las medidas necesarias para mejorar la ventilación en el área de trabajo. No continúe operando si el malestar físico persiste.
4. Haga referencia a la publicación ANSI/ASC Standard Z49.1 (Vea la lista a continuación) para recomendaciones específicas en la ventilación.
5. **ADVERTENCIA-- Este producto cuando se utiliza para soldaduras o cortes, produce humos o gases, los cuales contienen químicos conocidos por el Estado de California de causar defectos en el nacimiento, o en algunos casos, Cancer. (California Health & Safety Code §25249.5 et seq.)**

MANEJO DE CILINDROS-- Los cilindros, si no son manejados correctamente, pueden romperse y liberar violentamente gases. Rotura repentina del cilindro, válvula, o válvula de escape puede causar daño o muerte. Por lo tanto:

1. Utilize el gas apropiado para el proceso y utilize un regulador diseñado para operar y reducir la presión del cilindro de gas . No utilice adaptadores. Mantenga las mangueras y las conexiones en buenas condiciones. Observe las instrucciones de operación del manufacturero para montar el regulador en el cilindro de gas comprimido.
2. Asegure siempre los cilindros en posición vertical y amárrelos con una correa o cadena adecuada para asegurar el cilindro al carro, transportes, tablilleros, paredes, postes, o armazón. Nunca asegure los cilindros a la mesa de trabajo o las piezas que son parte del circuito de soldadura . Este puede ser parte del circuito elélectrico.
3. Cuando el cilindro no está en uso, mantenga la válvula del cilindro cerrada. Ponga el capote de protección sobre la válvula si el regulador no está conectado. Asegure y mueva los cilindros utilizando un carro o transporte adecuado. Evite el manejo brusco de los

MANTENIMIENTO DEL EQUIPO -- Equipo defectuoso o mal mantenido puede causar daño o muerte. Por lo tanto:

1. Siempre tenga personal cualificado para efectuar l a instalación, diagnóstico, y mantenimiento del equipo. No ejecute ningún trabajo eléctrico a menos que usted esté cualificado para hacer el trabajo.
2. Antes de dar mantenimiento en el interior de la fuente de poder, desconecte la fuente de poder del suministro de electricidad primaria.
3. Mantenga los cables, cable a tierra, conexciones, cable primario, y cualquier otra fuente de poder en buen estado operacional. No opere ningún equipo en malas condiciones.
4. No abuse del equipo y sus accesorios. Mantenga el equipo lejos de cosas que generen calor como hornos, también lugares húmedos como charcos de agua , aceite o grasa, atmósferas corrosivas y las inclemencias del tiempo.
5. Mantenga todos los artículos de seguridad y coverturas del equipo en su posición y en buenas condiciones.
6. Use el equipo sólo para el propósito que fue diseñado. No modifique el equipo en ninguna manera.

INFORMACION ADICIONAL DE SEGURIDAD -- Para más información sobre las prácticas de seguridad de los equipos de arco eléctrico para soldar y cortar, pregunte a su suplidor por una copia de "Precautions and Safe Practices for Arc Welding, Cutting and Gouging-Form 52-529.

Las siguientes publicaciones, disponibles através de la American Welding Society, 550 N.W. LeJuene Road, Miami, FL 33126, son recomendadas para usted:

1. ANSI/ASC Z49.1 - "Safety in Welding and Cutting"
2. AWS C5.1 - "Recommended Practices for Plasma Arc Welding"
3. AWS C5.2 - "Recommended Practices for Plasma Arc Cutting"
4. AWS C5.3 - "Recommended Practices for Air Carbon Arc Gouging and Cutting"
5. AWS C5.5 - "Recommended Practices for Gas Tungsten Arc Welding“
6. AWS C5.6 - "Recommended Practices for Gas Metal Arc Welding""
7. AWS SP - "Safe Practices" - Reprint, Welding Handbook.
8. ANSI/AWS F4.1, "Recommended Safe Practices for Welding and Cutting of Containers That Have Held Hazardous Substances."

SIGNIFICADO DE LOS SIMBOLOS -- Según usted avanza en la lectura de este folleto: Los Símbolos Significan ¡Atención! ¡Esté Alerta! Se trata de su seguridad.

PELIGRO **Significa riesgo inmediato que, de no ser evadido, puede resultar inmediatamente en serio daño personal o la muerte.**

ADVERTENCIA **Significa el riesgo de un peligro potencial que puede resultar en serio daño personal o la muerte.**

CUIDADO **Significa el posible riesgo que puede resultar en menores daños a la persona.**

AVERTISSEMENT: Ces règles de sécurité ont pour objet d' assurer votre protection. Veillez à lire et à observer les précautions énoncées ci-dessous avant de monter l' équipement ou de commercer à l'utiliser. Tout défaut d'observation de ces précautions risque d'entraîner des blessures graves ou mortelles.

1. PROTECTION INDIVIDUELLE-- Les brûlures de la peau et des yeux dues au rayonnement de l'arc électrique ou du métal incandescent, lors du soudage au plasma ou à l'électrode ou lors du gougeage à l'arc, peuvent s'avérer plus graves que celles résultant d'une exposition prolongée au soleil. Aussi convient-il d'observer les précautions suivantes:

a. Portez un écran facial adéquat muni des plaques protectrices et des verres filtrants appropriés afin de vous protéger les yeux, le visage, le cou et les oreilles des étincelles et du rayonnement de l'arc électrique lorsque vous effectuez des soudures ou des coupes ou lorsque vous en observez l'exécution.

AVERTISSEZ les personnes se trouvant à proximité de façon à ce qu'elles ne regardent pas l'arc et à ce qu'elles ne s'exposent pas à son rayonnement, ni à celui du métal incandescent.

b. Portez des gants ignifugés à crispins, une tunique épaisse à manches longues, des pantalons sans rebord, des chaussures à embout d'acier et un casque de soudage ou une calotte de protection, afin d'éviter d'exposer la peau au rayonnement de l'arc électrique ou du métal incandescent. Il est également souhaitable d'utiliser un tablier ininflammable de façon à se protéger des étincelles et du rayonnement thermique.

c. Les étincelles ou les projections de métal incandescent risquent de se loger dans des manches retroussées, des bords relevés de pantalons ou dans des poches. Aussi convient-il de garder boutonnés le col et les manches et de porter des vêtements sans poches à l'avant.

d. Protégez des étincelles et du rayonnement de l'arc électrique les autres personnes travaillant à proximité à l'aide d'un écran ininflammable adéquat.

e. Ne jamais omettre de porter des lunettes de sécurité lorsque vous vous trouvez dans un secteur où l'on effectue des opérations de soudage ou de coupage à l'arc. Utilisez des lunettes de sécurité à écrans ou verres latéraux pour piquer ou meûler le laitier. Les piquetures incandescentes de laitier peuvent être projetées à des distances considérables. Les personnes se trouvant à proximité doivent également porter des lunettes de protection.

f. Le gougeage à l'arc et le soudage à l'arc au plasma produisent un niveau de bruit extrêmement élevé (de 100 à 114 dB) et exigent par conséquent l'emploi de dispositifs appropriés de protection auditive.

2 PRÉVENTION DES INCENDES-- Les projections de laitier incandescent ou d'étincelles peuvent provoquer de graves incendies au contact de matériaux combustibles solides, liquides ou gazeux. Aussi faut-il observer les précautions suivantes:

a. Éloigner suffisamment tous les matériaux combustibles du secteur où l'on exécute des soudures ou des coupes à l'arc, à moins de les recouvrir complètement d'une bâche non-inflammable. Ce type de matériaux comprend notamment le bois, les vêtements, la sciure, l'essence, le kérosène, les peintures, les solvants, le gaz naturel, l'acétylène, le propane et autres substances combustibles semblables.

b. Les étincelles ou les projections de métal incandescent peuvent tomber dans des fissures du plancher ou dans des ouvertures des murs et y déclencher une ignition lente cachée. Veiller à protéger ces ouvertures des étincelles et des projections de métal.

c. N'exécutez pas de soudures, de coupes, d'opérations de gougeage ou autres travaux à chaud à la surface de barils, bidons, réservoirs ou autres contenants usagés, avant de les avoir nettoyés de toute trace de substance susceptible de produire des vapeurs inflammables ou toxiques.

d. En vue d'assurer la prévention des incendies, il convient de disposer d'un matériel d'extinction prêt à servir immédiatement, tel qu'un tuyau d'arrosage, un seau à eau, un seau de sable ou un extincteur portatif.

e. Une fois le travail à l'arc terminé, inspectez le secteur de façon à vous assurer qu'aucune étincelle ou projection de métal incandescent ne risque de provoquer ultérieurement un feu.

3. CHOC ÉLECTRIQUE-- Le gougeage à l'arc et à l'arc au plasma exige l'emploi de tensions à vide relativement importantes; or, celles-ci risquent de causer des dommages corporels graves et même mortels en cas d'utilisation inadéquate. La gravité du choc électrique reçu dépend du chemin suivi par le courant à travers le corps humain et de son intensité.

a. Ne laissez jamais de surfaces métalliques sous tension venir au contact direct de la peau ou de vêtements humides. Veillez à porter des gants bien secs.

b. Si vous devez effectuer un travail sur une surface métallique ou dans un secteur humide, veillez à assurer votre isolation corporelle en portant des gants secs et des chaussures à semelles de caoutchouc et en vous tenant sur une planche ou une plate-forme sèche.

c. Mettez toujours à la terre le poste de soudage/coupage en le reliant par un câble à une bonne prise de terre.

d. N'utilisez jamais de câbles usés ou endommagés. Ne surchargez jamais le câble. Utilisez toujours un équipement correctement entretenu.

e. Mettez l'équipement hors tension lorsqu'il n'est pas en service. une mise à la masse accidentelle peut en effet provoquer une surchauffe de l'équipement et un danger d'incendie. Ne pas enrouler ou passer le câble autour d'une partie quelconque du corps.

f. Vérifiez si le câble de masse est bien relié à la pièce en un point aussi proche que possible de la zone de travail. Le branchement des câbles de masse à l'ossature du bâtiment ou en un point éloigné de la zone de travail augmente en effet le risque de passage d'un courant de sortie par des chaînes de

levage, des câbles de grue ou divers chemins électriques.

g. Empêchez l'apparition de toute humidité, notamment sur vos vêtements, à la surface de l'emplacement de travail, des câbles, du porte-électrode et du poste de soudage/coupage. Réparez immédiatement toute fuite d'eau.

4. VENTILATION-- La respiration prolongée des fumées résultant des opérations de soudage/coupage, à l'intérieur, d'un local clos, peut provoquer des malaises et des dommages corporels. Aussi convient-il d'observer les précautions suivantes:

a. Assurez en permanence une aération adéquate de l'emplacement de travail en maintenant une ventilation naturelle ou à l'aide de moyens mécaniques. N'effectuez jamais de travaux de soudage ou de coupage sur des matériaux de zinc, de plomb, de beryllium ou de cadmium en l'absence de moyens mécaniques de ventilation capables d'empêcher l'inhalation des fumées dégagées par ces matériaux.

b. N'effectuez jamais de travaux de soudage ou de coupage à proximité de vapeurs d'hydrocarbure chloré résultant d'opérations voisines de dégraissage ou de pulvérisation. La chaleur dégagée ou le rayonnement de l'arc peut déclencher la formation de phosgène -- gaz particulièrement toxique -- et d'autres gaz irritants, à partir des vapeurs de solvant.

c. Une irritation momentanée des yeux, du nez ou de la gorge constatée au cours de l'utilisation de l'équipement dénote un défaut de ventilation. Arrêtez-vous de travailler afin de prendre les mesures néces- saires à l'amélioration de la ventilation. Ne poursuivez pas l'opération entreprise si le malaise persiste.

d. Certaines commandes comportent des canalisations où circule de l'hydrogène. L'armoire de commande est munie d'un ventilateur destiné à empêcher la formation de poches d'hydrogène, lesquelles présentent un danger d'explosion; ce ventilateur ne fonctionne que si l'interrupteur correspondant du panneau avant se trouve placé en position ON (Marche). Veillez à manœuvrer cette commande en vérifiant si le couvercle est bien en place, de façon à assurer l'efficacité de la ventilation ainsi réalisée. Ne jamais débrancher le ventilateur.

e. Les fumées produites par l'opération de soudage ou de coupage peuvent s'avérer toxiques. Aussi est-il nécessaire de disposer en permanence d'un dispositif adéquat de ventilation de type aspirant, afin d'élimi-ner du voisinage de l'opérateur tout dégagement de fumée visible.

f. Consultez les recommandations particulières en matière de ventilation indiquées à l'alinéa 6 de la norme Z49.1 de l'AWS.

5. ENTRETIEN DE L'ÉQUIPEMENT-- Un équipement entretenu de façon défectueuse ou inadéquate risque non seulement de réaliser un travail de mauvaise qualité mais, chose plus grave encore, d'entraîner des dommages corporels graves, voire mortels en déclenchant des incendies ou des chocs électriques. Observez par conséquent les précautions suivantes:

a. Efforcez-vous de toujours confier à un personnel qualifié l'installation, le dépannage et l'entretien du poste de soudage et de coupage. N'effectuez aucune réparation électrique sur l'équipement à moins d'être qua-lifié à cet effet.

b. Ne procédez jamais à une tâche d'entretien quelconque à l'intérieur du poste de soudage/coupage, avant d'avoir débranché l'alimentation électrique.

c. Maintenez en bon état de fonctionnement les câbles, le câble de masse, les branchements, le cordon d'alimentation et le poste de soudage/coupage. N'utilisez jamais le poste ou l'équipement s'il présente une défectuosité quelconque.

d. Prenez soin du poste de soudage et de coupage et des équipements accessoires. Gardez-les à l'écart des sources de charleur, notamment des fours, de l'humidité, des flaques d'eau maintenez-les à l'abri des traces d'huile ou de graisse, des atmosphères corrosives et des intempéries.

e. Laissez en place tous les dispositifs de sécurité et tous les panneaux de l'armoire de commande en veillant à les garder en bon état.

f. Utilisez le poste de soudage/coupage conformément à son usage prévu et n'effectuez aucune modification.

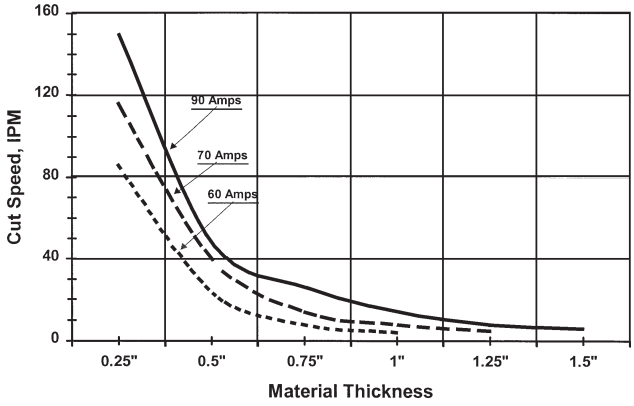
6. INFORMATIONS COMPLÉMENTAIRES RELATIVES À LA SÉCURITÉ--
Pour obtenir des informations complémentaires sur les règles de sécurité à observer pour le montage et l'utilisation d'équipements de soudage et de coupage électriques et sur les méthodes de travail recommandées, demandez un exemplaire du livret N° 52529 "Precautions and Safe Practices for Arc Welding, Cutting and Gouging" publié par ESAB. Nous conseillons également de consulter les publications sui-vantes, tenues à votre disposition par l'American Welding Society, 550 N.W. LeJuene Road, Miami, FL 32126:

a. "Safety in Welding and Cutting" AWS Z49.1
b. "Recommended Safe Practices for Gas-Shielded Arc Welding "AWS A6. 1.
c. "Safe Practices for Welding and Cutting Containers That Have Held Combustibles" AWS-A6.0.
d. "Recommended Safe Practices for Plasma Arc Cutting" AWS-A6. 3.
e. "Recommended Safe Practices for Plasma Arc Welding" AWS-C5. 1.
f. "Recommended Safe Practices for Air Carbon Arc Gouging and Cutting" AWS-C5. 3.
g. "Code For Safety in Welding and Cutting" CSA-Standard W117. 2.

PowerCut-1500 Plasmarc™ Cutting Package

The PowerCut 1500 plasma cutting package combines the proven reliability of the PowerCut-875 and 1125 with the newly designed PT-32EH torch. The very strong composite case material makes the PowerCut-1500 an excellent addition to any equipment rental fleet. The PT-32EH plasma cutting torch is designed to provide increased performance and longer consumable life resulting in higher production rates at lower costs.

- *Multi input voltage (208)230/460V, easily changed on back of machine.*
- *Cuts 1-1/2 inch*
- *Designed for rugged treatment and outdoor use makes the PowerCut an excellent choice for rental fleet and construction site uses.*
- *More performance features than any machines in its class.*
- *Delivers big machine cutting power in a rugged, lightweight package.*
- *Pilot arc start facilitates starting on painted and coated metals.*
- *Long-life consumables and repairable torch minimize operating costs.*
- *Arrives ready to cut, with torch connected and front-end parts in place, for the ultimate in operator convenience.*
- *Trigger lock-in for long-cut operator comfort.*
- *Built in line conditioner – handles poor power lines.*
- *Auto Drag feature allows torch to drag on workpiece without damage to the nozzle for easy template following.*
- *For longer nozzle life while drag cutting, a 40 amp nozzle is available (P/N 0558002908)*
- *Self protectant against improper input voltage*
- *Multiple troubleshooting lights on front panel*
- *Superior gouging performance*
- *Three year warranty on console.*
- *One year warranty on torch.*



Torch

PowerCut-1500 uses the PT-32EH torch. For complete list and breakdown of parts, refer to PT-32 data page.

Specifications: PowerCut-1500

Cuts 1-1/2 in. (38mm); severs 1-3/4 in. (45mm)

1 ph. Input	208/230 vac, 1 ph, 50/60 Hz, 82/74 A
1 ph. Output	90 amps @ 40% duty cycle
3 ph. Input	208/230 vac, 3 ph, 50/60 Hz, 44/40 A
	230/460 vac, 3 ph, 50/60 Hz, 40/27 A
	400 vac, 3ph, 50/60 Hz, 26 A
	575 vac, 3ph, 50/60 Hz, 11 A
3 ph. Output	90 amps @ 60% duty cycle
Dimensions	W = 13.1" (328mm)
w/ optional Torch Storage	W= 16.1" (403mm)
	H = 16.5" (419mm)
	D = 32.5" (826mm)
Weight	94 lbs. (42.7kg)
Shipping Weight	109 lbs. (49.5kg)
Air Requirements	360 cfh @ 75 psig (170 l/min @ 5.2 bars)

Ordering Information:

PowerCut-1500, 230/460 V, 25' PT-32EH	0558001942
PowerCut-1500, 230/460 V, 50' PT-32EH	0558001943
PowerCut-1500, 575 V, 25' PT-32EH	0558001948
PowerCut-1500, 575 V, 50' PT- 32EH	0558001949
PowerCut-1500, 400 V, "CE" 25' PT-32EH	0558001945
PowerCut-1500, 400 V, "CE" 50' PT-32EH	0558001946

Consoles:

PowerCut-1500 (208)230/460 V, 50/60 Hz, 1/3-ph	0558001944
PowerCut-1500 575 V, 50/60 Hz, 3-ph	0558001950

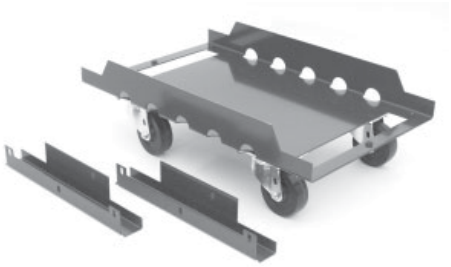
PT-32EH Torches:

PT-32EH Torch, 90° head, 25-ft.	0558003548
PT-32EH Torch, 90° head, 50-ft.	0558003549
PT-32EH Spare Parts Kit (see Table 1-1)	0558003062

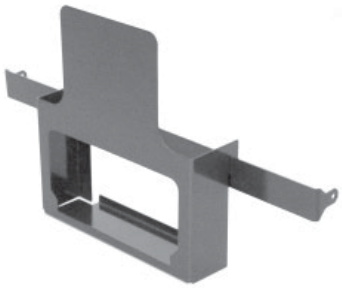
Optional Accessories:

90 amp Spare Parts Kit 0558003062
Plasma Flow Measuring Kit:
This valuable troubleshooting tool allows measurement of the actual plasma gas flow through the torch 19765
Torch Guide Kit:
This complete kit, in a rugged plastic carrying case, includes attachments for circle and straight line cutting on ferrous and non-ferrous metals, 1 3/4" - 42" Radius, Deluxe 0558003258
Basic, 1/34" - 28" Radius 0558002675

Stand-off Guide
For proper stand-off distance when drag cutting 0558002393
40 amp Drag Nozzle 0558002908
Gouging Nozzle 0558003089
Heat Shield Gouging 0558003090
Drag Heat Shield 0558003374



Wheel Kit
For easy transport of system 0558003060



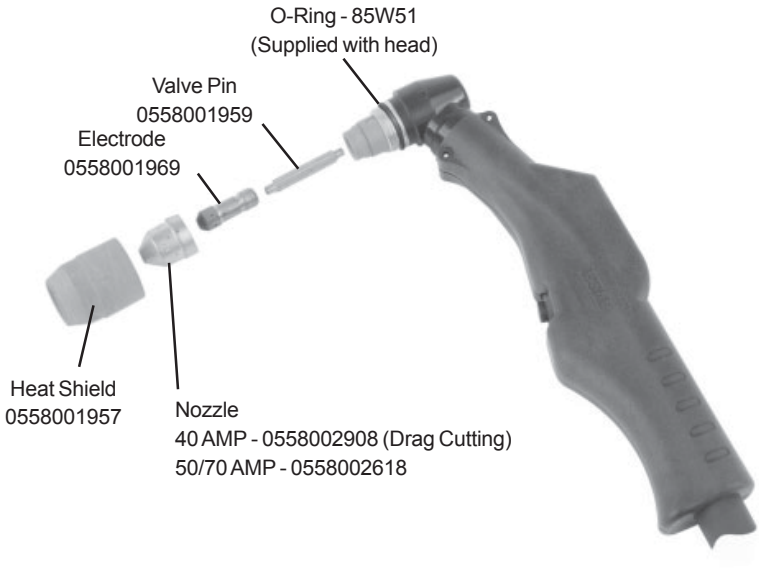
Torch Wrap
This enables operator to store spare parts kit, wrap torch and work cable for easy transport and storage 0558003059

Powercut shown with Optional Torch Wrap and Spare Parts Kit Holder installed.

Contents of PT-32 Spare Parts Kit, P/N 0558003062

Description	P/N	Quantity
Heat Shield	0558001957	2
90 amp Nozzle	0558002837	4
40 amp drag Nozzle	0558002908	1
Electrode	0558001969	3
Valve Pin	0558001959	1
Fuse 2amp, 600vac	0558003075	
Stand-off Guide	0558002393	1
Wrench	19129	1
Lubricant	17672	1

The PowerCut-1500 comes out of the box ready to go. The torch is attached with parts in place, primary cord is attached (including plug on 230 model), and the filter/regulator is installed. Just hook up the air, plug it in and cut.



WARNING

Use only The ESAB PT-32 Plasmarc torch with this console. Use of torches not designed for use with this console could create an ELECTRIC SHOCK HAZARD.

1.1 GENERAL

The Powercut-1500 is a compact, completely self-contained plasma cutting system. As shipped, the system is fully assembled and ready to cut after being connected to input power and a source of compressed air (90-150 psi). The Powercut-1500 package uses the heavy-duty PT-32 torch to deliver cutting power for severing materials up to 1-1/2 inch thick. Refer to the following paragraphs for descriptions of the Powercut-1500 packages available as well as performance specifications.

1.2 SCOPE

The purpose of this manual is to provide the operator with all the information required to install and operate the Powercut-1500 plasma arc cutting package. Technical reference material is also provided to assist in trouble-shooting the cutting package.

2.1 GENERAL

Proper installation is important for satisfactory and trouble-free operation of the PowerCut 1500 cutting package. It is suggested that each step in this section be studied carefully and followed closely.

2.2 EQUIPMENT REQUIRED

A source of clean, dry air that supplies 350 cfh at 80 psig is required for the cutting operation. The air supply should not exceed 150 psig (the maximum inlet pressure rating of the air filter-regulator supplied with the package).

2.3 LOCATION

Adequate ventilation is necessary to provide proper cooling of the PowerCut 1500. The amount of dirt, dust, and excessive heat to which the equipment is exposed, should be minimized. There should be at least one foot of clearance between the PowerCut 1500 power source and wall or any other obstruction to allow freedom of air movement through the power source.

2.4 INSPECTION

CAUTION

Installing or placing any type of filtering device will restrict the volume of intake air, thereby subjecting the power source internal components to overheating. The warranty is void if any type of filter device is used.

A. Remove the shipping container and all packing material and inspect for evidence of concealed damage which may not have been apparent upon receipt of the PowerCut 1500. Notify the carrier of any defects or damage at once.

B. Check container for any loose parts prior to disposing of shipping materials.

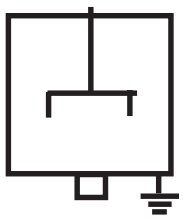
C. Check air louvers and any other openings to ensure that any obstruction is removed.

2.5 PRIMARY ELECTRICAL INPUT CONNECTIONS (FIGURE 2-1)

WARNING

ELECTRIC SHOCK CAN KILL! Precautionary measures should be taken to provide maximum protection against electrical shock. Be sure that all power is off by opening the line (wall) disconnect switch and by unplugging the power cord to the unit when connections are made inside of the power source.

The PowerCut 1500 consoles are equipped with approximately 10-ft. of 4-conductor input power cable for 3-phase connection. If single-phase connection is desired, tape back the red wire on the input power cable. Connect the single phase input to the white and black wires only. When operating this machine from a single-phase source, it must be connected to a dedicated 100 Amp feed. Due to the higher input current requirements, the duty cycle of the machine is lower than in three-phase operation.



CUSTOMER FUSED LINE DISCONNECT SWITCH
(See Table 2.1 and WARNING in regards to chassis ground in Section 2.5.)

WARNING

ELECTRIC SHOCK CAN KILL! Before making electrical input connections to the power source, "Machinery Lockout Procedures" should be employed. If the connections are to be made from a line disconnect switch, place the switch in the off position and padlock it to prevent inadvertent tripping . If the connection is made from a fusebox, remove the corresponding fuses and padlock the box cover. If it is not possible to use padlocks, attach a red tag to the line disconnect switch (or fuse box) warning others that the circuit is being worked on.

WARNING

The chassis must be connected to an approved electrical ground. Failure to do so may result in electrical shock, severe burns or death.

WARNING

Before making any connections to the power source output terminals, make sure that all primary input power to the power source is deenergized (off) at the main disconnect switch and that the input power cable is unplugged.

CAUTION

INPUT VOLTAGE SELECTOR NOT POWER ON - OFF SWITCH USE POWER SWITCH ON FRONT PANEL TO TURN ON AND OFF

Before connecting to input power, make sure there is a line (wall) disconnect switch with fuses or circuit breakers at the main power panel. You may either use the factory-installed input power cable (No. 6 AWG, 4/c, type SO (90 °C), 12 ft (3.7 m) length) or provide your own input power leads. If you choose to provide your own, make sure they are insulated copper conductors. You must have two (single-phase) or three (three-phase) power leads and one ground wire. The wires may be heavy rubber covered cable or may be run in a solid or flexible conduit. Refer to Table 2-1 for recommended input conductors and line fuse sizes.

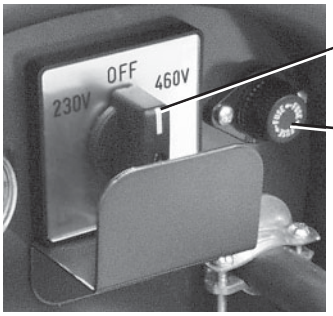
Table 2-1. Recommended Sizes For Input Conductors and Line Fuses

Input Requirements			Input & Gnd	Fuse
Volts	Phase	Amps	Conductor CU/AWG	Size Amps
208	1	82A	6	100
208	3	44A/Ph.	6	80
230	1	74A	6	100
230	3	40A/Ph.	6	80
460	3	27	6	50

2.5.1 INPUT VOLTAGE CHANGEOVER

200 - 230 or 460 Mode

To simplify the use of the ESAB Powercut 1500 with different input voltages, it has been equipped with a convenient 230/460 selector switch located on the back panel of the unit. The Powercut 1500 is also equipped with protective fuse that will prevent damage to the power source in the event that the input voltage switch is not set correctly and the unit is powered on.



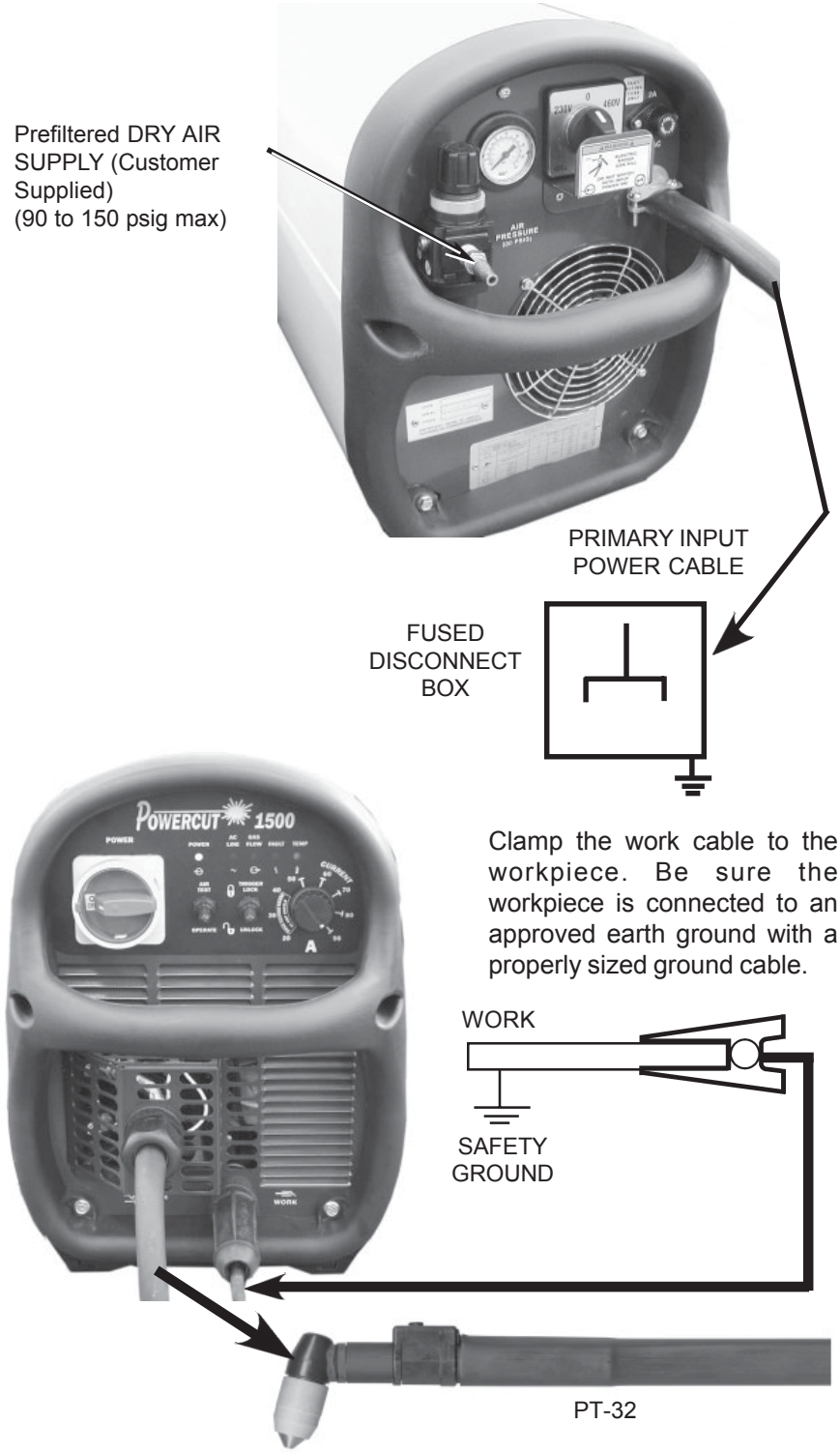
A line (wall) disconnect switch with fuses or circuit breakers should be provided at the main power panel (see Fig. 2-1 and Table 2-1 for fuse sizes). The input power cable of the console may be connected directly to the disconnect switch or you may purchase a proper plug and receptacle from a local electrical supplier. If using plug/receptacle combination, see Table 2-1 for recommended input conductors for connecting receptacle to line disconnect switch.

2.6 SECONDARY (OUTPUT) CONNECTIONS (REFER TO FIG. 2-1)

The Torch comes factory installed.

Figure 2-1. PowerCut 1500 Interconnection Diagram

Connect your air supply to the inlet connection of the filter-regulator.


Prefiltered DRY AIR SUPPLY (Customer Supplied)
(90 to 150 psig max)
PRIMARY INPUT POWER CABLE
FUSED DISCONNECT BOX
POWERCUT 1500
Clamp the work cable to the workpiece. Be sure the workpiece is connected to an approved earth ground with a properly sized ground cable.
WORK
SAFETY GROUND
PT-32

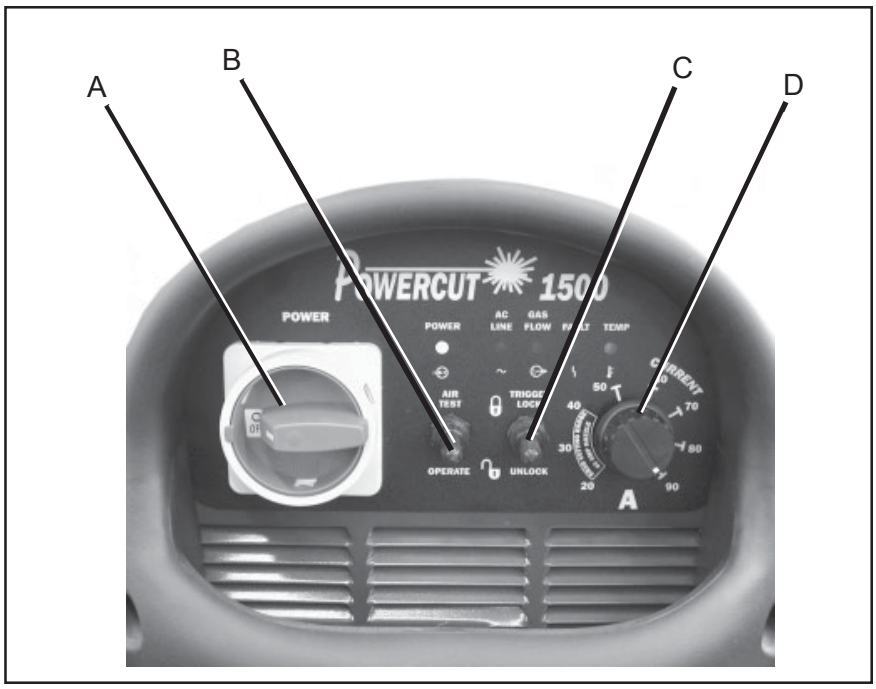


Figure 3-1A. PowerCut 1500 Controls

3.1 OPERATION

3.2 PowerCut 1500 CONTROLS (FIGURE 3-1A)

A. **Power Switch.** When placed in ON position, the green pilot light will glow indicating control circuit is energized.

B. **Air Test Switch.** When placed in Test position, air filter-regulator can be adjusted to desired pressure (80 psig) before cutting operations. Allow air to flow for a few minutes. This should remove any condensation that may have accumulated during shutdown period. Be sure to place switch in OPERATE position before starting cutting operations.

C. **Trigger Lock Switch.** When placed in LOCK position, this permits releasing torch switch button after cutting arc has been initiated. To extinguish arc at end of cut, press and release torch switch button again or pull torch away from work. When placed in UNLOCK position, torch switch must be held closed by the operator during the entire cutting operation and then released at the end of cut.

D. **Output Current Control.** Adjustable from 20 to 90 amperes.

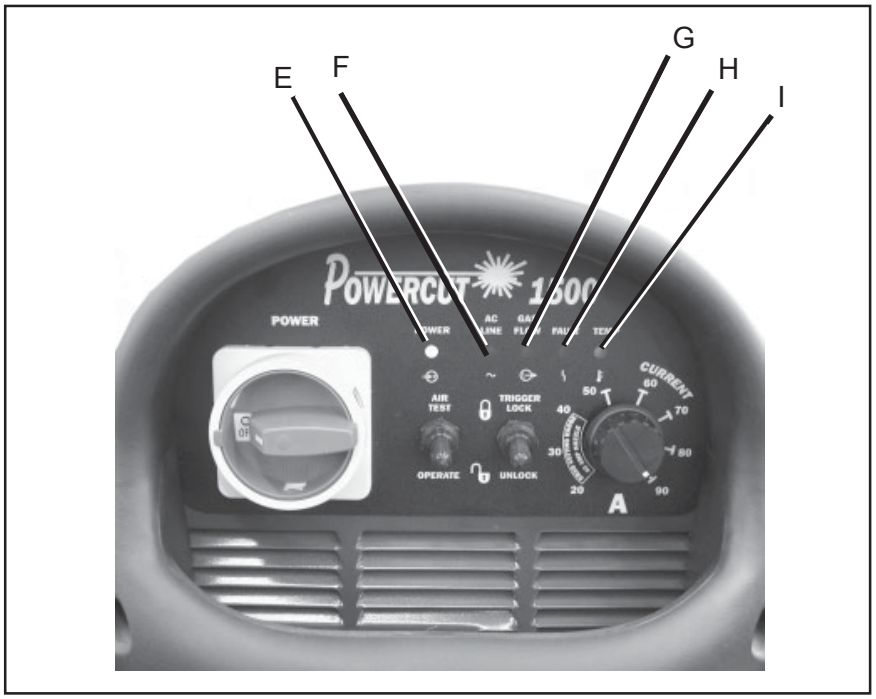


Figure 3-1B. PowerCut 1500 Controls

3.2 PowerCut 1500 Indicator Lights (FIGURE 3-1B)

E. Power "ON" Indicator: Illuminates whenever the front panel power switch is in the ON position.

F. AC Line Indicator or High/Low Line Voltage Indicator: This fault light will blink to indicate that the input voltage is outside the "+ or -" 15% range of the input rating.

G. Gas Flow Indicator: This fault light will blink to indicate that the air flow supply is low or has no back pressure.

H. Fault Indicator: When this light blinks, either the system failed to initiate a pilot arc after a number of attempts, or there has been an over-current event within the system. If the light blinks for 10 seconds and then stops, then the problem is pilot arc initiation. Check the consumables in the torch.

If the light continues to blink, and the system does not reset, then the fault is an over-current event. One likely source of an over-current fault is a nozzle to electrode short. Turn off the machine and inspect the torch and its consumables. Replace the consumables as needed. Turn the machine back on. If the problem occurs again, the machine may require service.

I. Over Temperature Indicator: This fault light will blink to indicate that the duty cycle has been exceeded. Allow the power source to cool down before returning to operation.

All fault signals will remain on for a minimum of 10 seconds. If fault clears, all will reset automatically except for over-current. To clear over-current, the power must be shut off for 5 seconds and then

turned back on.

WARNING

ELECTRIC SHOCK can kill.

- **Do NOT operate the unit with the cover removed.**
- **Do NOT apply power to the unit while holding or carrying the unit.**
- **Do NOT touch any torch parts forward of the torch handle (nozzle, heat shield, electrode, etc.) with power switch on.**

WARNING

ARC RAYS can burn eyes and skin; NOISE can damage hearing.

- **Wear welding helmet with No. 6 or 7 lens shade.**
- **Wear eye, ear, and body protection.**

CAUTION

Position the PowerCut 1500 at least 10 feet (3 meters) from the cutting area. Sparks and hot slag from the cutting operation can damage the unit.

3.3 CUTTING WITH THE POWERCUT-1500

Use the following procedures to cut with the PT-32 torch (Figure 3-4).

A. Make sure that the wall disconnect switch is on. Turn on the Front Panel Power Switch.
B. Set Pressure Regulator to 80 psig.
C. Hold the torch nozzle approximately 1/8 to 3/16 inch above the work and tilted at about 15 - 30°. This reduces the chance of spatter entering the nozzle. If the PT-32's standoff guide P/N 0558002393 is being used, the distance between Electrode and Work Piece will be approx. 3/16-inch.
D. Depress the torch switch. Air should flow from the torch nozzle.
E. Two seconds after depressing the torch switch, the pilot arc should start. The main arc should immediately follow, allowing the cut to begin. (If using the trigger LOCK mode, torch switch may be released after establishing the cutting arc.)
F. After starting the cut, the torch should be maintained at a 5-15° forward angle (Figure 3-2). This angle is especially useful in helping to create a "drop" cut. When not using the standoff guide, the nozzle should be

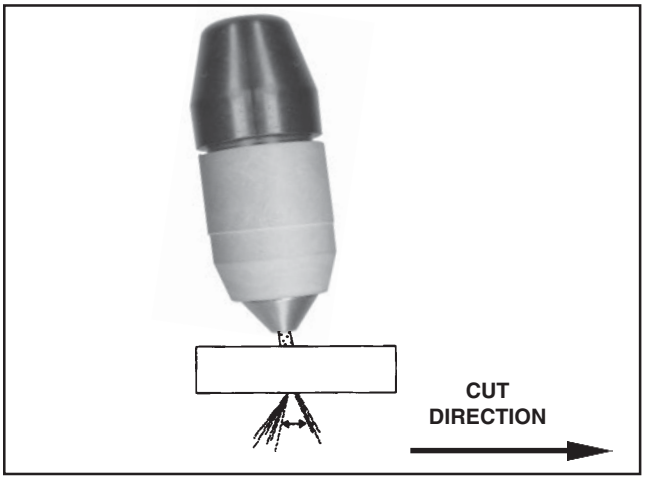
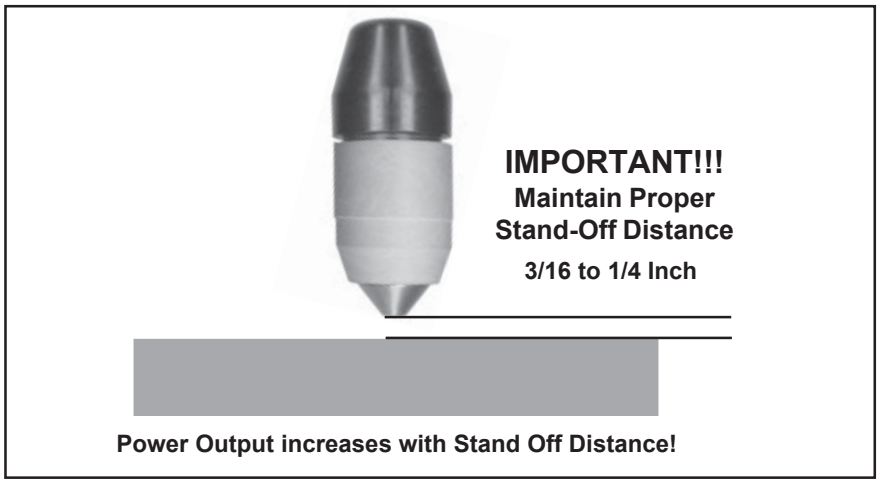


Figure 3-2. Recommended Torch Angle of 5° to 15°



Standoff vs. Power Output

held approximately 1/4 inch from the work.

E. When ending a cut, the torch switch should be released (press and release if using trigger LOCK mode) and the torch lifted off the workpiece just before the end of the cut. This is to prevent the high frequency from reigniting after cutting arc extinguishes and causing damage to the nozzle (double arcing).

F. For rapid re-starts, such as grate or heavy mesh cutting, do not release the torch switch. In the postflow mode, the arc can be re-started immediately by depressing the torch switch. This avoids the 2-second preflow portion of the cutting cycle.

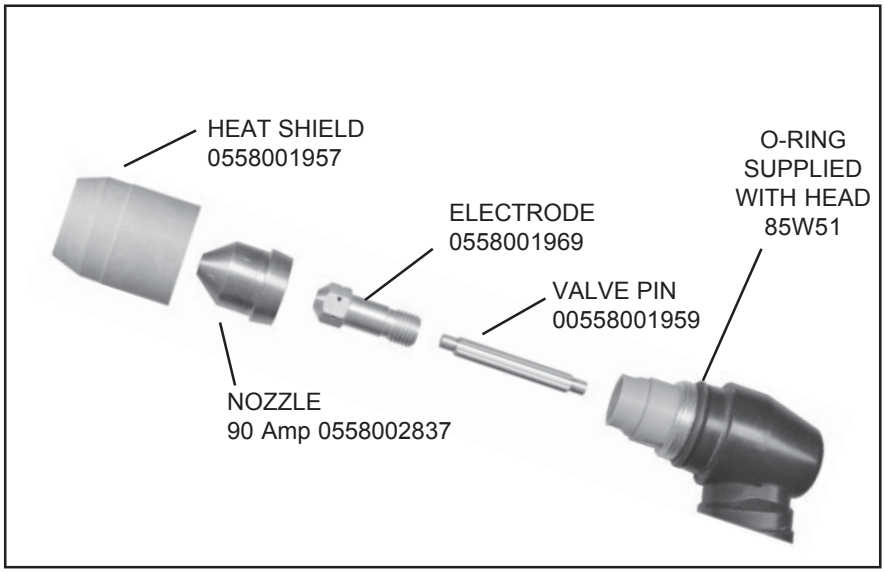


Fig 3.3. Exploded View of PT-32 Torch

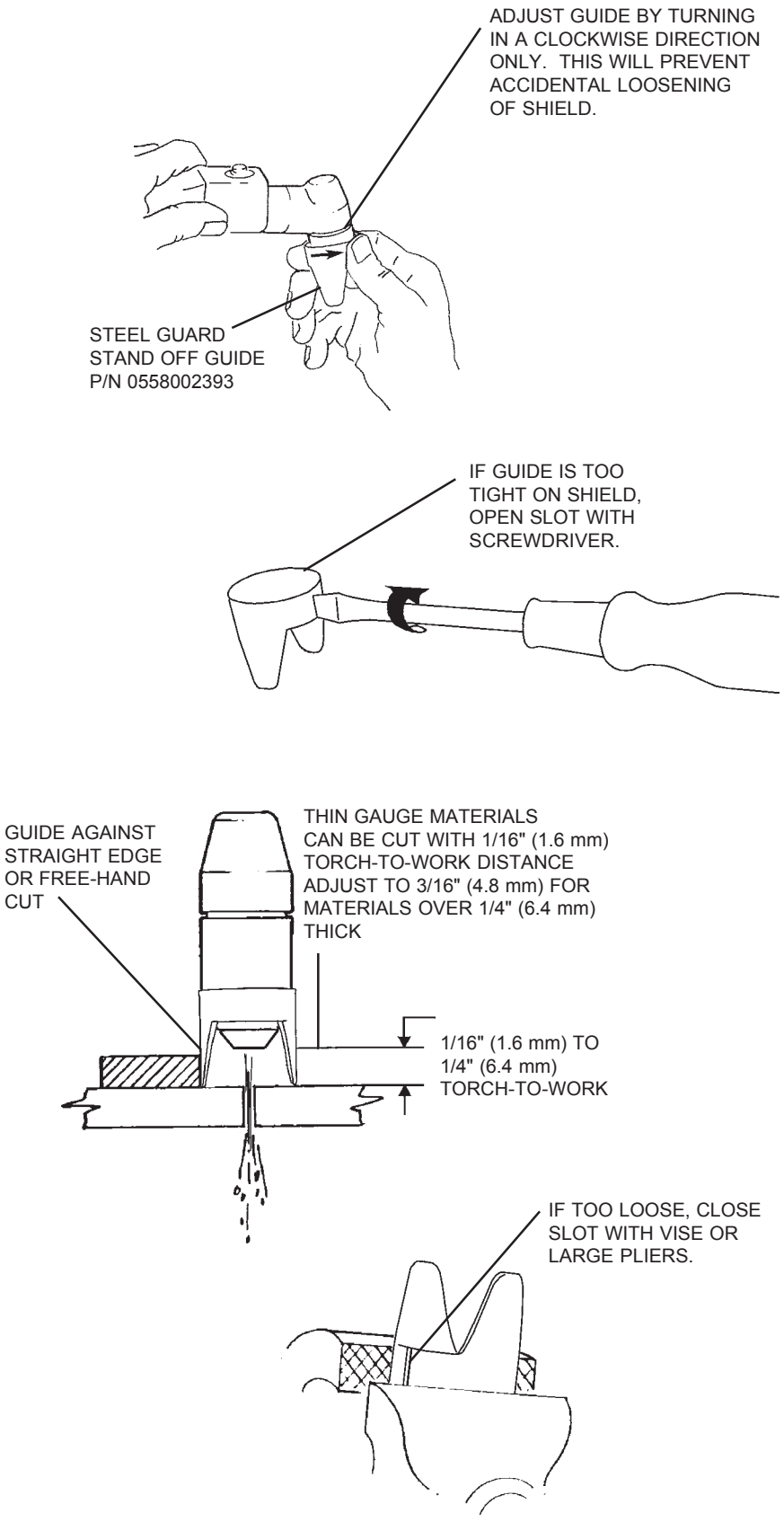

ADJUST GUIDE BY TURNING IN A CLOCKWISE DIRECTION ONLY. THIS WILL PREVENT ACCIDENTAL LOOSENING OF SHIELD.
STEEL GUARD STAND OFF GUIDE P/N 0558002393
IF GUIDE IS TOO TIGHT ON SHIELD, OPEN SLOT WITH SCREWDRIVER.
GUIDE AGAINST STRAIGHT EDGE OR FREE-HAND CUT
THIN GAUGE MATERIALS CAN BE CUT WITH 1/16" (1.6 mm) TORCH-TO-WORK DISTANCE ADJUST TO 3/16" (4.8 mm) FOR MATERIALS OVER 1/4" (6.4 mm) THICK
1/16" (1.6 mm) TO 1/4" (6.4 mm) TORCH-TO-WORK
IF TOO LOOSE, CLOSE SLOT WITH VISE OR LARGE PLIERS.

Figure 3-4. Installation and Operation of Steel Heat Shield Guards

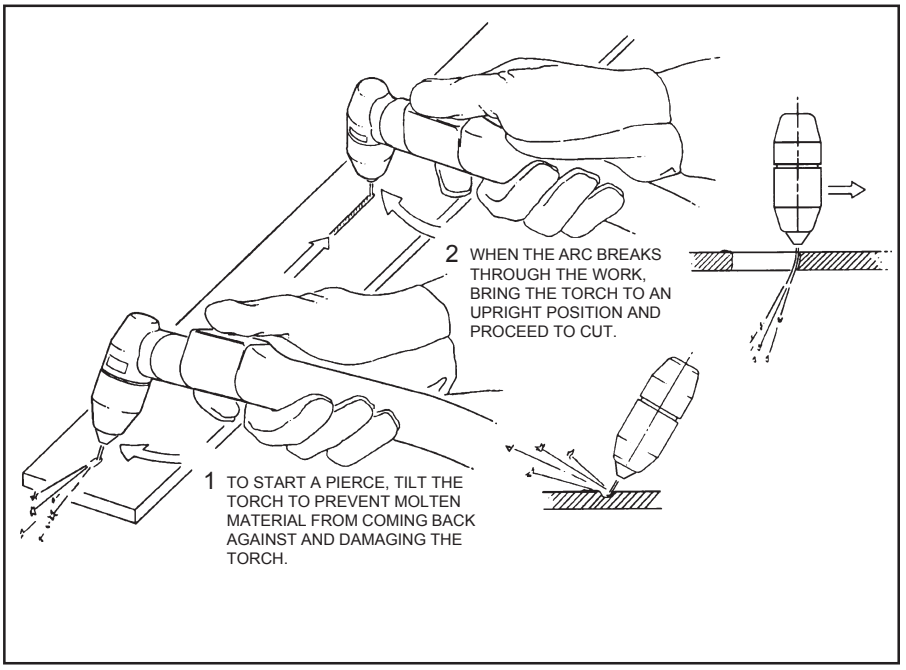

2 WHEN THE ARC BREAKS THROUGH THE WORK, BRING THE TORCH TO AN UPRIGHT POSITION AND PROCEED TO CUT.
1 TO START A PIERCE, TILT THE TORCH TO PREVENT MOLTEN MATERIAL FROM COMING BACK AGAINST AND DAMAGING THE TORCH.

Figure 3-5. Piercing Technique using the PT-32

3.4 POSSIBLE CUTTING ISSUES

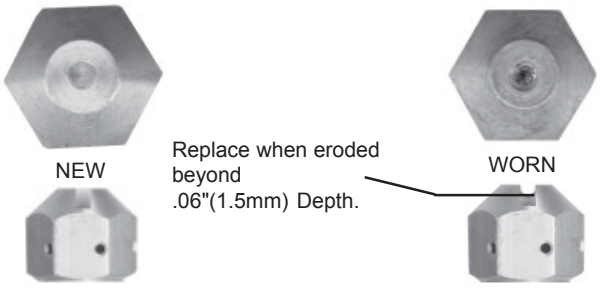


Figure 3-6. Electrode Wear Limit

CAUTION

REPLACE ELECTRODE BEFORE PITTING BECOMES DEEPER THAN .06 INCH (1.5 MM)

NOTE: When replacing the nozzle, always inspect the electrode for wear. If more than .06" of electrode Hafnium has eroded, replace the electrode. If the electrode is used beyond this recommended wear limit, damage to the torch and power source may occur. Nozzle life is also greatly reduced when using the electrode below the recommended limit. Refer to Figure 3-3.

3.3.1. Drag Cutting with the PT-32 torch / PowerCut 1500 package.

Drag cutting, even with lower current levels may significantly reduce the life of torch consumables. Attempting to Drag Cut with higher currents (40 amps) may cause immediate catastrophic consumable damage.

LOW CURRENT AUTO-DRAG FEATURE

If drag cutting is desired for thin material under 3/8" thick, remove the standard 90 amp nozzle from the PT-32 torch and install ESAB's 40 amp nozzle (P/N 0558002908). **Lower the current level setting to be within the AUTO-DRAG range of 20 to 40 amps *(see Auto Drag Scale on front panel)*.** Then follow steps in Section (3.3). Also refer to PT-32 Instruction Manual No. F-15-440.

HIGH CURRENT DRAG CUTTING

If drag cutting is desired on materials above 3/8" thick, be sure that the 90 amp nozzle (P/N 0558002837) is installed in the PT-32 torch. Attach ESAB's stand-off guide (P/N 0558002393) and operate as shown in Figure 3.4.

Listed below are common cutting problems followed by the probable cause of each. If problems are determined to be caused by the PowerCut 1500, refer to the maintenance section of this manual. If the problem is not corrected after referring to the maintenance section, contact your ESAB distributor.

A. Insufficient Penetration.

1. Current too low.
2. Cutting speed too fast.
3. Damaged cutting nozzle.
4. Improper air pressure.
5. Low air flow rate.

B. Main Arc Extinguishes.

1. Cutting speed too slow.
2. Worn electrode.

C. Dross Formation. (In some materials and thicknesses, it may be impossible to get dross-free cuts.)

1. Current too low.
2. Cutting speed too fast or too slow.
3. Improper air pressure.
4. Faulty nozzle or electrode.
5. Low air flow rate.

D. Double Arcing. (Damaged Nozzle Orifice.)

1. Low air pressure.
2. Damaged cutting nozzle.
3. Loose cutting nozzle.
4. Heavy spatter accumulation on nozzle.

E. Uneven Arc.

1. Damaged cutting nozzle or worn electrode.

F. Unstable Cutting Conditions.

1. Incorrect cutting speed.
2. Loose cable or hose connections.
3. Electrode and/or cutting nozzle in poor condition.

G. Main Arc Does Not Strike.

1. Worn electrode.
2. Loose connections.
3. Work cable not attached.

H. Poor Consumable Life.

1. Improper gas pressure.
2. Contaminated air supply.
3. Low air flow rate.

4.1 GENERAL

If this equipment does not operate properly, stop work immediately and investigate the cause of the malfunction. Maintenance work must be performed by an experienced person, and electrical work by a trained electrician. Do not permit untrained persons to inspect, clean, or repair this equipment. Use only recommended replacement parts.

WARNING

Be sure that the wall disconnect switch or wall circuit breaker is open before attempting any inspection or work inside of the Powercut-1500.

4.2 INSPECTION AND CLEANING

Frequent inspection and cleaning of the Powercut-1500 is recommended for safety and proper operation. Some suggestions for inspecting and cleaning are as follows:

A. Check work cable for secured connection to workpiece.
B. Check safety earth ground at workpiece and at power source chassis.
C. Check heat shield on torch. It should be replaced if damaged.
D. Check the torch electrode and cutting nozzle for wear on a daily basis. Remove spatter or replace if necessary.
E. Make sure cable and hoses are not damaged or kinked.
F. Make sure all plugs, fittings, and ground connections are tight.
G. With all input power disconnected, and wearing proper eye and face protection, blow out the inside of the Powercut-1500 using low-pressure dry compressed air.

CAUTION

Water or oil occasionally accumulates in compressed air lines. Be sure to direct the first blast of air away from the equipment to avoid damage to the Powercut-1500.

H. Occasionally, bleed all water from the filter beneath the air filter-regulator.

4.3 PT-32 TORCH CONSUMABLE PARTS

WARNING

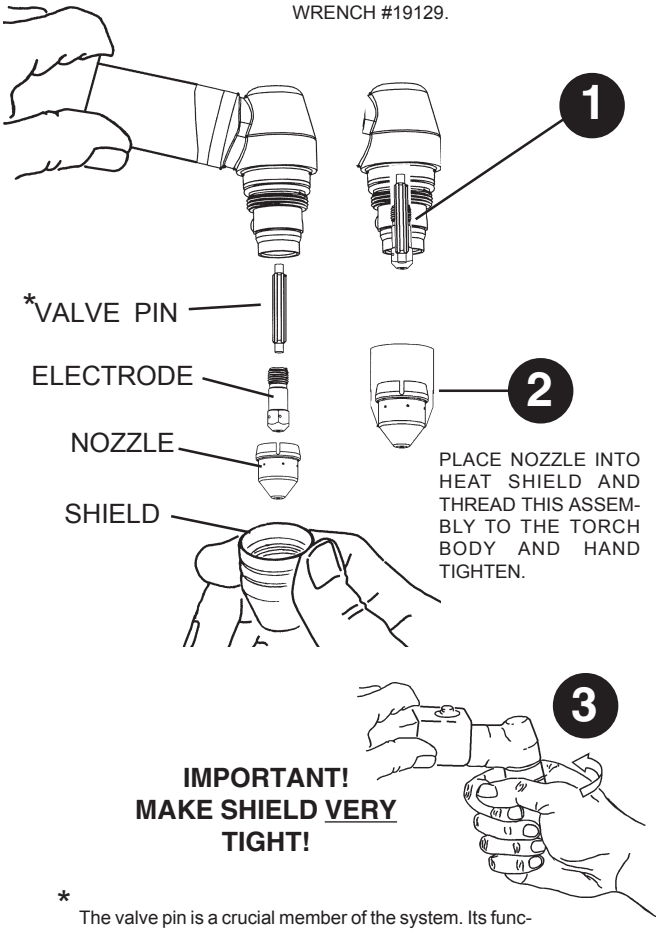
Make sure power switch on POWERCUT-1500 is in OFF position before working on the torch.

WARNING

The PT-32 torch head contains a gas flow check valve that acts in conjunction with the flow switch and circuitry within the power source. This system prevents the torch from being energized with high voltage if the torch switch is accidentally closed when the shield is removed. Always replace torch with the proper torch manufactured by ESAB since it alone contains ESAB's patented safety interlock.

To assemble the consumable parts, refer to Figure 4-1 .

PLACE THE VALVE PIN INTO THE ELECTRODE AND SCREW THE ELECTRODE INTO THE TORCH HEAD AND TIGHTEN SECURELY WITH WRENCH #19129.



* The valve pin is a crucial member of the system. Its function is to open the gas flow check valve that is permanently assembled within the torch head. If the pin is not correctly placed in the electrode, the valve will not open and the system will not function. The valve pin also improves electrode cooling by increasing the velocity of air over the inner surface of the electrode.

LOW CURRENT AUTO-DRAG FEATURE

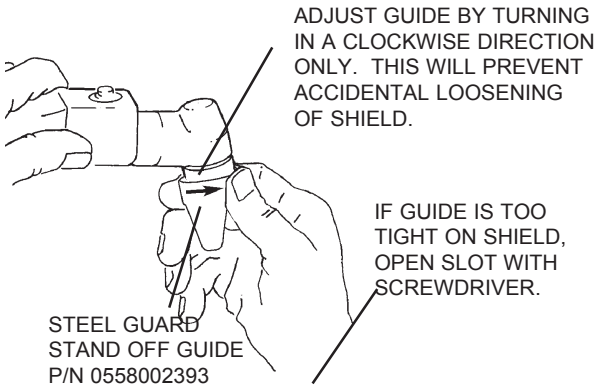
If drag cutting is desired for thin material under 3/8" thick, remove the standard 90 amp nozzle (P/N 0558002837) from the PT-32 torch and install ESAB's 40 amp nozzle (P/N 0558002908). Lower the current level setting to be within the AUTO-DRAG range of 20 to 40 amps *(see Auto Drag Scale on front panel)*. Then follow steps in Section (3.3). Also refer to PT-32 Instruction Manual No. F-15-440.

HIGH CURRENT CUTTING with STAND-OFF GUIDE

If drag cutting is desired on materials above 3/8" thick, be sure that the 90 amp nozzle (P/N 0558002837) is installed in the PT-32 torch. Attach ESAB's stand-off guide (P/N 0558002393) and operate as shown in Figure 3.4.

Installation and Operation of Steel Heat Shield Guards

Drag cutting, even with lower current levels may significantly reduce the life of torch consumables. Attempting to Drag Cut with currents above 40 amps may cause immediate catastrophic consumable damage.


ADJUST GUIDE BY TURNING IN A CLOCKWISE DIRECTION ONLY. THIS WILL PREVENT ACCIDENTAL LOOSENING OF SHIELD.
IF GUIDE IS TOO TIGHT ON SHIELD, OPEN SLOT WITH SCREWDRIVER.
STEEL GUARD STAND OFF GUIDE P/N 0558002393

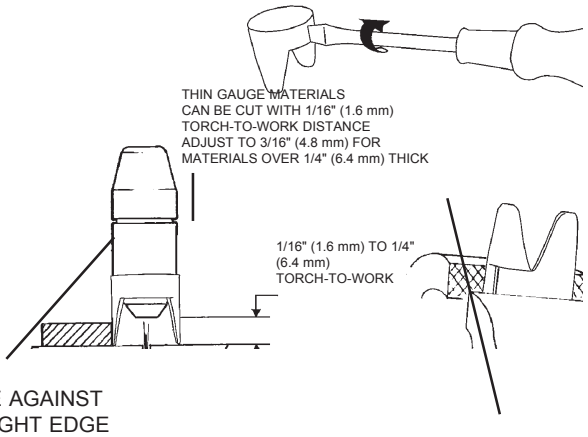

THIN GAUGE MATERIALS CAN BE CUT WITH 1/16" (1.6 mm) TORCH-TO-WORK DISTANCE ADJUST TO 3/16" (4.8 mm) FOR MATERIALS OVER 1/4" (6.4 mm) THICK
1/16" (1.6 mm) TO 1/4" (6.4 mm) TORCH-TO-WORK
GUIDE AGAINST STRAIGHT EDGE OR FREE-HAND CUT
IF TOO LOOSE, CLOSE SLOT WITH VISE OR LARGE PLIERS.

Figure 4-1

4.4 IGBT Handling & Replacement

Since IGBT gates are insulated from any other conducting region, care should be taken to prevent static build up, which could possibly damage gate oxides. All IGBT modules are shipped from the factory with conductive foam contacting the gate and emitter sense pins.

Always ground parts touching gate pins during installation. In general, standard ESD precautions application to FETs should be followed.

Other handling precautions that should also be observed are as follows:

- Use grounded work station with grounded floors and grounded wrist straps when handling devices.
- Use a 100Ω resistor in series with the gate when performing curve tracer tests.
- Never install devices into systems with power connected to the system.
- Use soldering irons with grounded tips when soldering to gate terminals.

When mounting IGBT modules on a heatsink, certain precautions should be taken to prevent any damage against a sudden torque. If a sudden torque (“one-sided tightening”) is applied at only one mounting terminal the ceramic insulation plate or silicon chip inside the module may get damaged.

The mounting screws are to be fastened in the order shown in Figure 4-2. Also, care must be taken to achieve maximum contact (i.e. minimum contact thermal resistance) for the best heat dissipation.

Application of a thermal pad on the contact surface improves its thermal conductivity. See Replacement Parts section for the required pad.

A torque wrench should be used. Tighten mounting screws to 28 in-lbs; wire connecting screws to 19 in-lbs. If torque is too heavy, the device can damage like the above “one-sided tightening”.

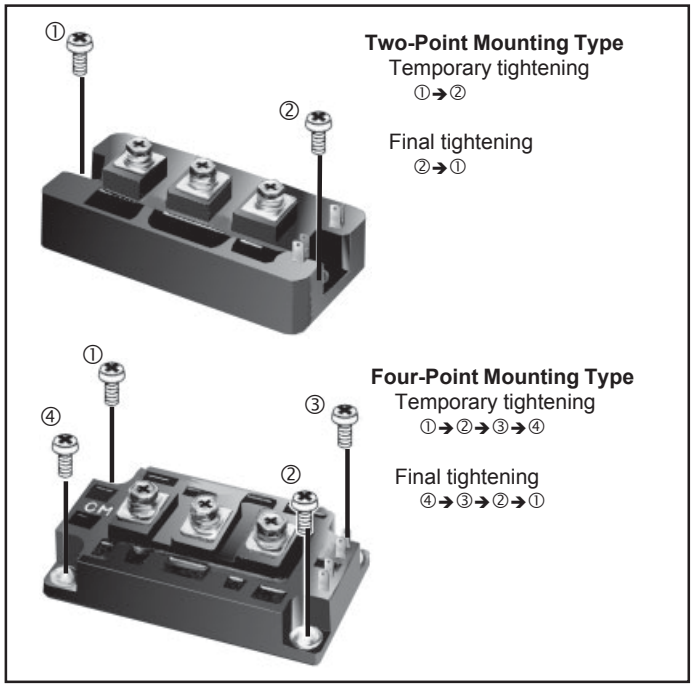


Figure 4-2. Screw Fastening Order

5.1 TROUBLESHOOTING

WARNING

ELECTRIC SHOCK CAN KILL! Be sure that all primary power to the machine has been externally disconnected. Open the line (wall) disconnect switch or circuit breaker before attempting inspection or work inside of the power source.

Check the problem against the symptoms in the following troubleshooting guide. The remedy may be quite simple. If the cause cannot be quickly located, shut off the input power, open up the unit, and perform a simple visual inspection of all the components and wiring. Check for secure terminal connections, loose or burned wiring or components, bulged or leaking capacitors, or any other sign of damage or discoloration.

The cause of control malfunctions can be found by referring to the sequence of operations and electrical schematic diagram (Figure 5-1) and checking the various components. A volt-ohmmeter will be necessary for some of these checks.

WARNING

Voltages in plasma cutting equipment are high enough to cause serious injury or possibly death. Be particularly careful around equipment when the covers are removed.

NOTE

Before checking voltages in the circuit, disconnect the power from the high frequency PC Board (PCB-2, Connector J2) to avoid damaging your voltmeter.

5.2 TROUBLESHOOTING GUIDE

A. Power Light does not come on.

1. Visually inspect the machine for any damage.

2. Check following:

   a. Check if the machine power cord is plugged into the input power receptacle.
   b. Measure the input power at the receptacle. If not present, then check the wall disconnect switch and it's fuses.
   c. Check Fuse (F1).

3. If above items check OK , the problem is internal. Send unit to an Authorized Repair Station for repair.

   a. Ensure that ribbon cable is connected to main PCB-1 and front panel PCB-3
   b. Measure voltage between pins P7-5 and P7-6 of the control board. If there is no voltage, then replace Control Transformer (T6).
   c. If the voltage is present, then the pilot light may be burnt out.

B. No Air Flow

1. Check air inlet supply. Unit requires 350 cfh at 80psig.

2. Check air hose and connections. Tighten if leaking.

3. Does air flow when "air test" switch is in test position?

   a. If not, check torch consumables, replace if necessary.
   b. If above items check OK , the problem is internal. Take unit to an Authorized Repair Station for repair.

C. The Power light is on, but nothing happens when the torch switch is depressed. Fault light does not activate.

NOTE: Unplug high frequency connection before attempting to work on this problem.

1. With the machine power on, depress the torch switch. On the control board the LED 1 should be lit as long as the switch is depressed. If not then check:

   a. Turn power off to the machine. Unplug Control board. Put an ohmmeter across J3-3 and J3-4 to take resistance reading. Depress torch switch. Meter should read a short. If not, then one of the following is not working properly:
   b. Torch switch or the leads. Unplug the torch switch leads at the machine. Put a meter across the two plug pins. Should read a short when the torch switch is depressed. If not, then either broken switch leads or malfunctioning switch.

2. Check transformer secondary voltages at the output diode modules.

Refer to system schematic. Replace the transformer if the correct secondary voltages are not present.

3. If everything above checks out all right, then the PCB1 Control Board should be replaced.

D. Fault light activates when torch switch is closed.

The machine monitor conditions necessary for the safe operation of the Powercut-1500. The fault lights will glow under the following conditions and operations will come to a stop.

1. **High/Low line voltage**. The "AC LINE" light will blink to indicate that the input voltage is outside the +/- 15% range of the nominal voltage.

2. **Gas Flow indicator** - The fault light will blink to indicate that the air flow is low or that the torch is not providing any back pressure.
   a. Check the air pressure at the machine regulator. It should be adjusted to 80 psig. If no air pressure, check the air at the supply point. Also, check for any obstructions in the air hose.
   b. Air flow may be blocked at the torch tip. Check the torch consumables (see Figure 3.3). Also check for any obstructions in the torch leads.

   NOTE: If above items check OK , the problem is internal. Send unit to an Authorized Repair Station for repair.

   c. Put the 'Air Check' switch to On position. Air should flow through torch. If not, and air pressure is set at required 80 PSIG, check gas Solenoid (SOL1) for proper operation.
   d. Air Check switch may also be malfunctioning if the air is flowing continuously or putting in the On position does not turn air on.

3. **Over Temperature indicator .** The fault light will blink to indicate that the machine is overheated. This generally indicates that the air flow has been blocked. Clear blockage and allow the power source to cool before operating.

   a. Thermal Switch (TS1) may be open. It will open if the heat sink temperature reaches 80°C. With the machine power off, check the continuity between P6-7 and P6-8 of the control board. If the switch is OK, then the ohmmeter should read a direct short. If not then it should read open.
   b. If the switch is malfunctioning, replace it. Clean the surface of the heat sink before installing the switch.
4. **Fault Indicator**. When this light blinks, either the system failed to initiate a pilot arc after a number of attempts, or there has been an over-current event within the system.

   a. If the light blinks for 10 seconds and then stops, then the problem is pilot arc initiation. Check the consumables in the torch.
   b. If the light continues to blink, and the system does not reset, then the fault is an over-current event. One likely source of an over-current fault is a nozzle to electrode short. Turn off the machine and inspect the torch and its consumables. Replace the consumables as needed. Turn the machine back on. If the problem occurs again, the machine may require service.

c. To check if the output is shorted, measure the resistance by putting the ohmmeter leads across the output. Put the black lead to the "work" terminal and the red lead to the torch electrode terminal. The reading should be about 2K OHMs.
b. If the resistance reading is different than above, check the torch, the output bridge and Start-up Board (PCB-6).

E. Air is On but nothing happens when torch switch is operated.

1. Check the torch. Make sure that the valve pin is installed and the heat shield is very tight.

2. Check to assure high frequency is present at the torch. **Disconnect HI FREQUENCY leads**. Check for 575 volt supply to the high frequency unit between P2A-1 & P2A-3 of the High Frequency Board (PCB2) with torch switch closed.

3. With HI FREQUENCY leads disconnected, measure open circuit voltage. It should be 320 VDC between “Work” and “Torch” terminals. If it is not present then any one of the following may not be working properly:

   a. Check the operation of the Thermal Switch (TS1). See D.3.a. above.
   b. Check Air Check switch operation. It might be stuck in On position. Pilot arc will not initiate if this switch is in the ON position. (safety reasons)
   c. Check air flow switch. There may be internal short. See D.2.c above.
   d. Measure voltage across C5 or C6 capacitor. It should be as follows:

      approx. 325 VDC with 230 V supplied to the 230/460 volt unit.
      approx. 294 VDC with 208 V supplied to the 230/460 volt unit
      approx. 325 VDC with 460 V supplied to the 230/460 volt unit
      approx. 400 VDC with 575 V supplied to the 575 volt unit

      If not, one of following could be malfunctioning:

      1). Check the capacitors C5 and C6 for any damage.

      2.) Check input bridge/SCR Module (BR1) This can be checked without taking it out of the circuit using an volt/ohmeter. Replace it if found malfunctioning. Follow bridge installation instructions.

      3.) Check Inrush current resistor (R1), located on the Input Bridge Heatsink and SCR (Q1). Replace if malfunctioning.

   e. IGBTs may be damaged. See IGBT installation procedure. Before replacing IGBTs, make sure to check the zener diodes and pico fuses on the IGBT driver boards.

F. High Frequency and Pilot Arc are on but Main Arc does not transfer.

1. Make sure work clamp is connected to work material.

2. Check the torch. Replace consumables if necessary.

G. Poor Cutting Performance.

1. Check air supply regulator . It should be adjusted to 80 psig.

2. The air supplied to the torch should be free of oil and water.

3. Make sure the consumables in the torch are acceptable.

4. Check open circuit voltage. See E.3 above.

5. Check the output. Use a calibrated current probe capable of measuring 100 amps in the presence of high frequency.

H. Air does not shut off.

1. Check air test, the gas solenoid valve is energized when the switch is in the “on” position.

2. Does air flow stop when the torch switch is unplugged? If yes, check and repair the torch. If not, send unit to an Authorized Repair Station for repair.

    a. Check voltage to solenoid coil, if present when torch switch is unplugged, replace PCB1. If voltage is “0”, replace solenoid valve.

I. Main arc is difficult to start.

1. The most common reason is worn or missing consumables. Check and replace if necessary.
2. Input air must be clean and dry.
3. Input air pressure must be 80 psig.
4. Torch connections must be tight.
5. Work cable and clamp must be in good condition and must make a good electrical connection to the material to be cut.
6. If above items check OK , the problem is internal. Send unit to an Authorized Repair Station for repair.
    a. Missing or weak pilot arc. Check pilot arc fuse, open circuit voltage and pilot arc wiring.
    b. Inoperative Start-up Board (PCB-6).

5.3 REFERENCE VOLTAGE CHECKS

A. Control Board Assembly (PCB1)

1. **LED's**

LED- (D9)- Torch Switch
LED- (D4)- Pilot Arc Relay
LED- (D1)- Gas Solenoid Valve

2. **Voltage Test Points**

Tests are made with power on - no arc.

Disable High Frequency by disconnecting blue wire with black sleeve

TP-1 - Torch trigger signal
TP-4 - IGBT's driving signal - switching frequency = 18.5 KHz
TP-5 - IGBT's driving signal - switching frequency = 18.5 KHz
TP-7 - +5 vdc
TP-8 - +15 vdc
TP-9 - -15 vdc
TP-10 - Ground

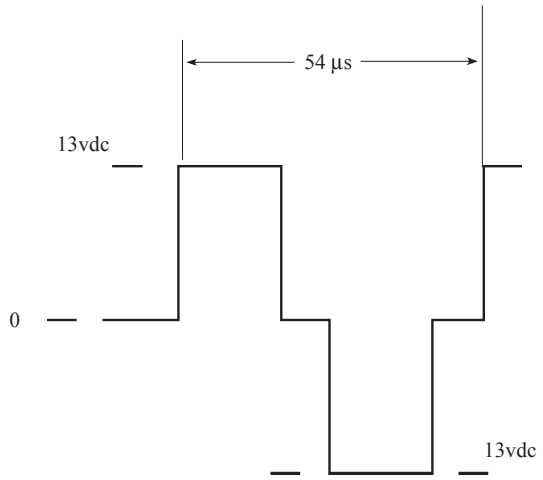
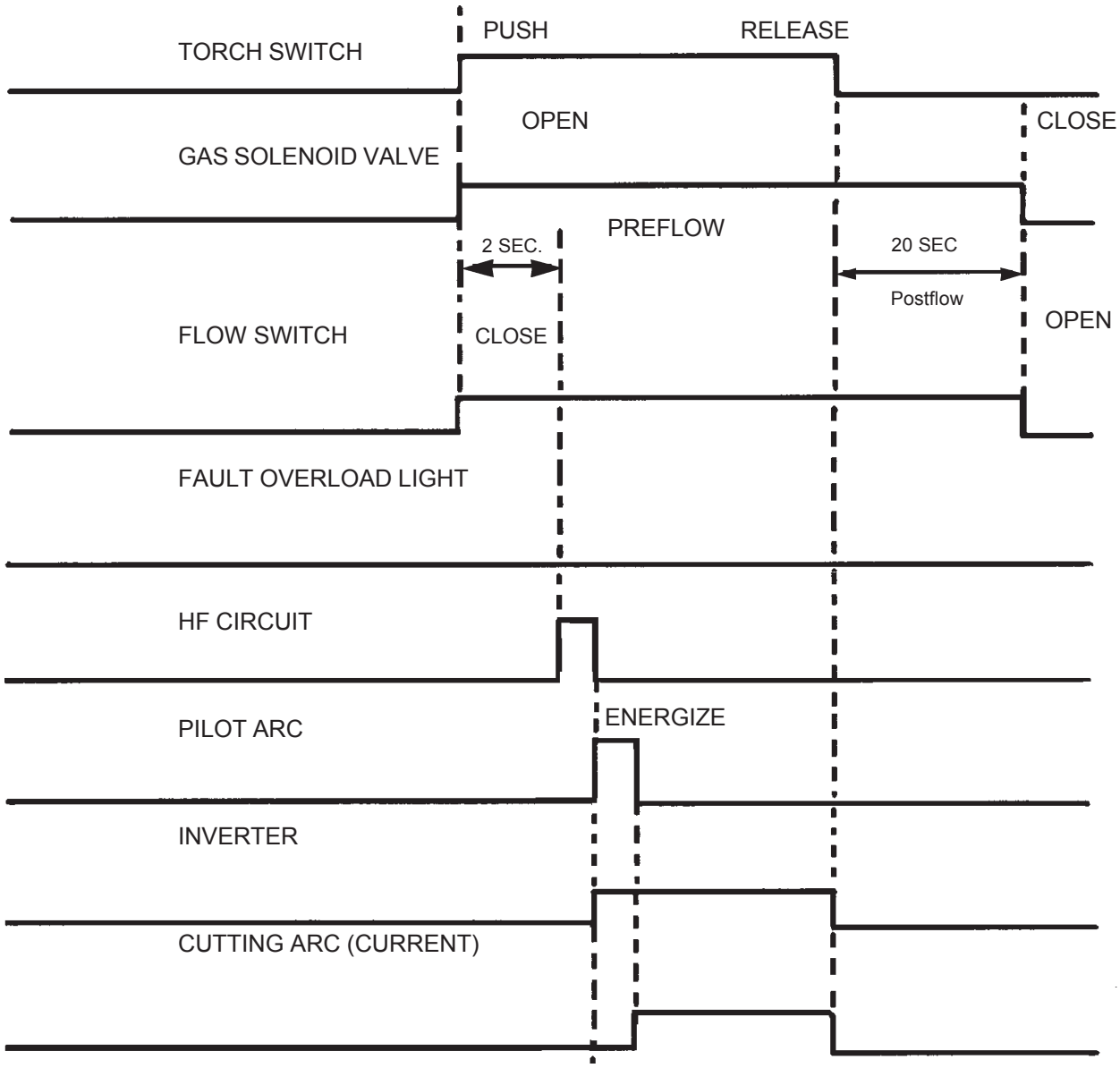


Figure 5.1 IGBT Gating Signal

5.4 SEQUENCE OF OPERATION

A. TRIGGER LOCK "UNLOCK" position

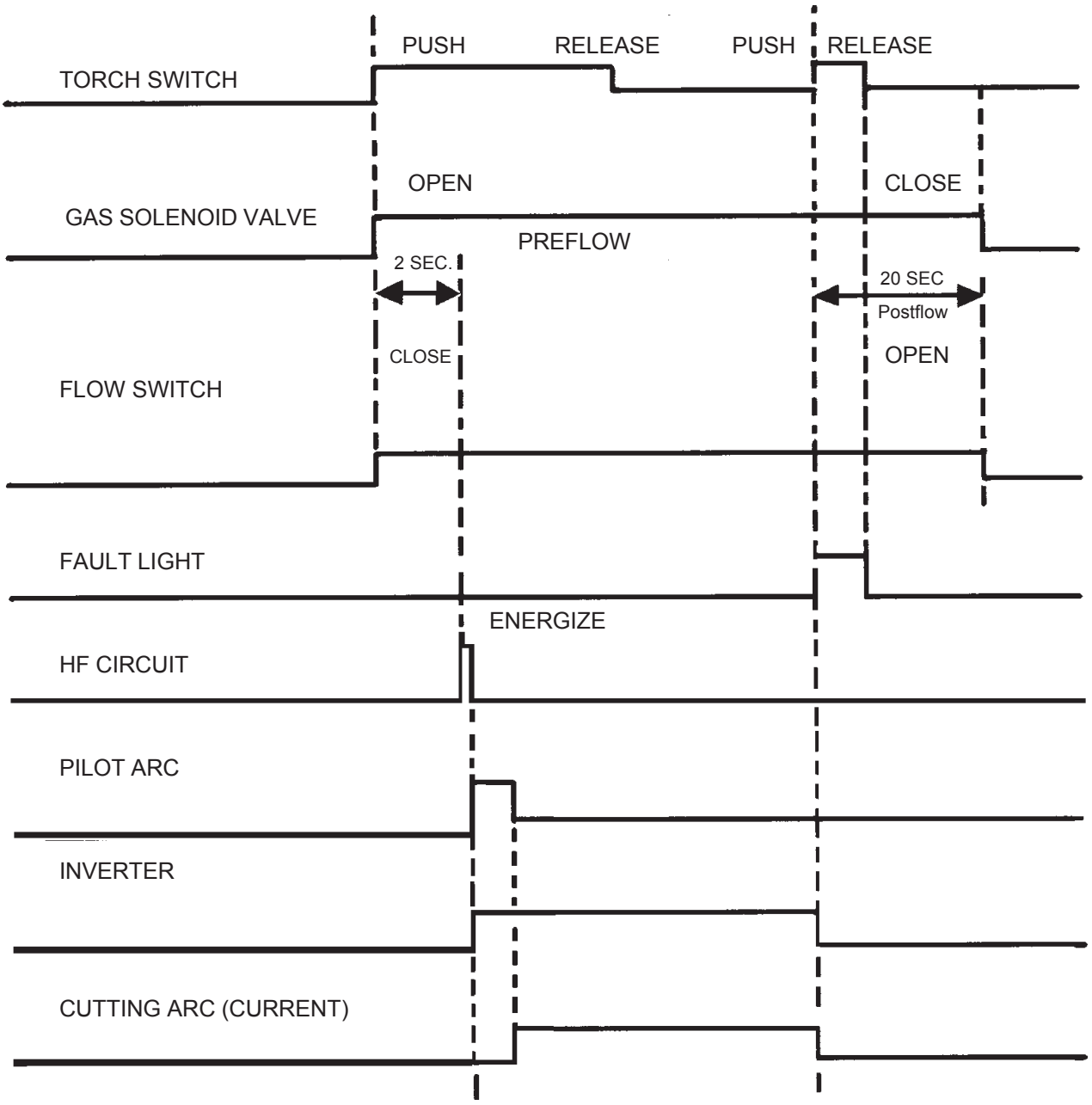


NOTES:

1. When the torch switch is pushed during postflow period, the postflow and preflow times are canceled, and the HF is energized immediately.

2. When the amber fault light comes on, cutting operation should be stopped. The postflow time starts from the moment the torch switch is released.

B. TRIGGER LOCK "LOCK" position

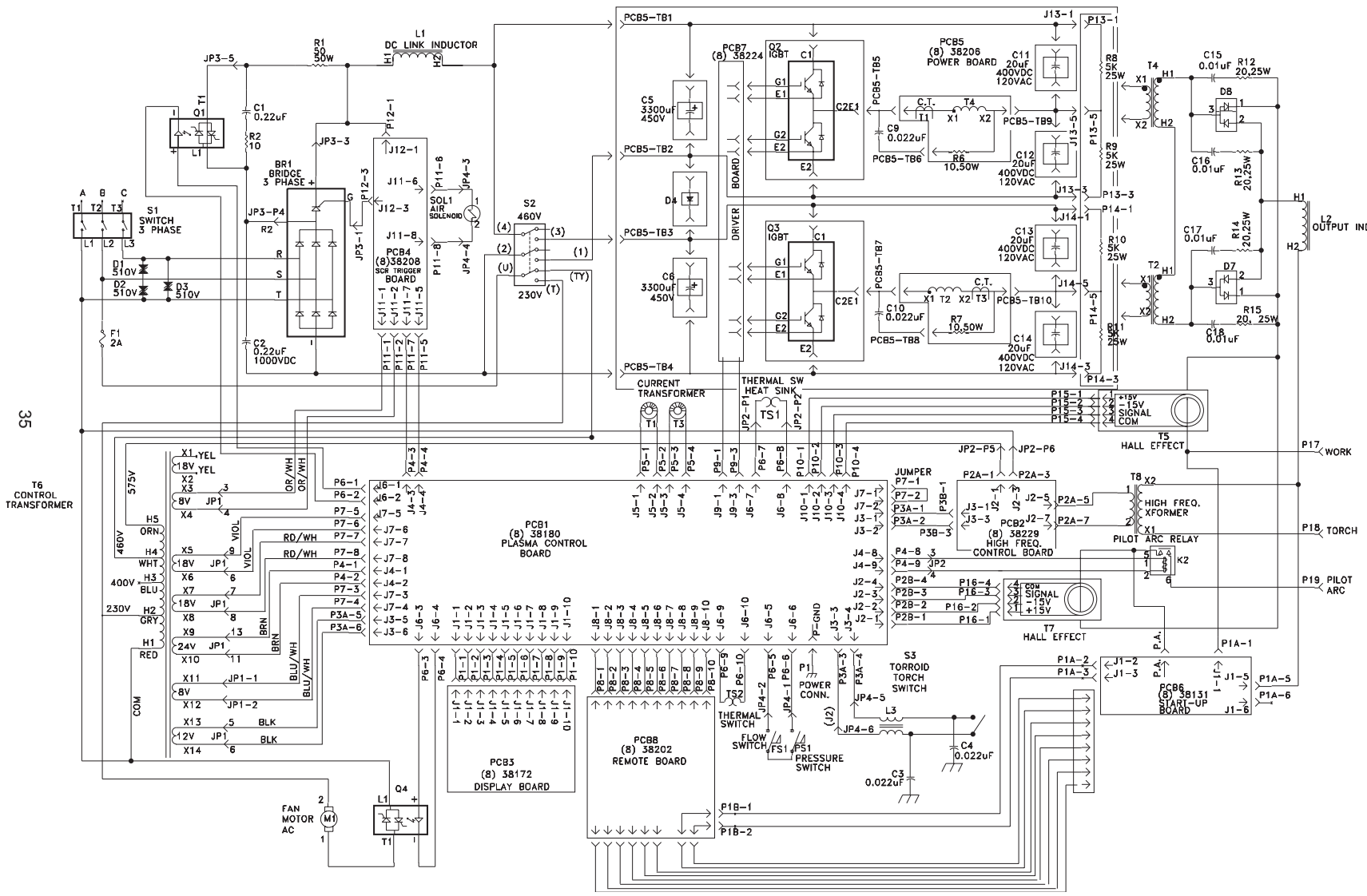


NOTES:

1. When the torch switch is pushed during postflow period, the postflow time is reset, the preflow time is canceled, and the HF is energized immediately.

2. When the red fault light comes on, cutting operation should be stopped. The postflow time starts from the moment the torch switch is released.

3. FAULT light is on during second "turn-off" trigger only. This does not affect performance in any way.



1	Q1	SCR 480V 18A PANEL MNT P/N 895293B
	L1	INDUCTOR INPUT P/N 80558002438
	PCB7	PCB IGBT DRIVER P/N 838224
	Q2	MODULE DUAL IGBT 200A 600V P/N
		80558003182
	PCB5	PCB POWER P/N 838206
	T2	TRANSFORMER MAIN P/N 80558002447
	D7	DIODE MODULE FDS 100A 600V P/N 8951185
2	S1	SW PWR* DISC 600V P/N 836107
	BR1	3PH BR RECT P/N 80558002434
	PCB4	PCB SCR TRIGGER P/N 838208
	SOL1	SOL AY 1/8 NPTMF P/N 80558002482
	S2	SWITCH 40A P/N 80558002446
	Q3	MODUAL DUAL IGBT 200A 600V P/N
		80558003182
	T4	TRANSFORMER MAIN P/N 80558002447
	D8	DIODE MODULE FDS 100A 600V P/N 8951185
	L2	INDUCTOR OUTPUT P/N 80558002455
	F1	FUSE 2A 600V 80558003075
3	T1	TRANSFORMER CURRENT P/N 8952986
	T3	TRANSFORMER CURRENT P/N 8952986
	TS1	SW THML D/T 176 15A 120V P/N 951085
	T5	TRANSDUCER CURRENT 100A P/N 8952252
4	T6	TRANSFORMER CONTROL P/N 80558002448
	PCB1	PCB CONTROL P/N 838180
	PCB2	PCB HI FREQ P/N 838229
	T7	TRANSDUCER CURRENT 100A P/N 8952252
	K2	RELAY SPST 24V W/MAG P/N 80558002576
5	M1	FAN 230V 50/60HZ 233 CFM P/N 8951182
	Q4	RELAY SS 3-32VDC/24-280VAC 25A
		P/N 80558002445
	PCB3	PCB DISPLAY P/N 838172
	TS2	SWITCH THERMAL 131°F P/N 8950710
	FS1	SWITCH PRESSURE .25 GPN P/N 80558002189
	S3	TORCH SW (TERM BUSHING) P/N 13730583
	PCB6	PCB START-UP NETWORK P/N 838131
	C3,C4	CAP 0.22uF 250VAC PAPER EPOXY
	L3	CORE TORROID P/N 951198
	PS1	SWITCH HIGH PRESSURE P/N 80558003105

Powercut-1500 Schematic Diagram

A. REPLACEMENT PARTS

Replacement Parts are illustrated on the following figures. When ordering replacement parts, order by part number and part name, as illustrated on the figure. Always provide the series or serial number of the unit on which the parts will be used. The serial number is stamped on the unit nameplate.

B. ORDERING

To assure proper operation, it is recommended that only genuine ESAB parts and products be used with this equipment. The use of non-ESAB parts may void your warranty.

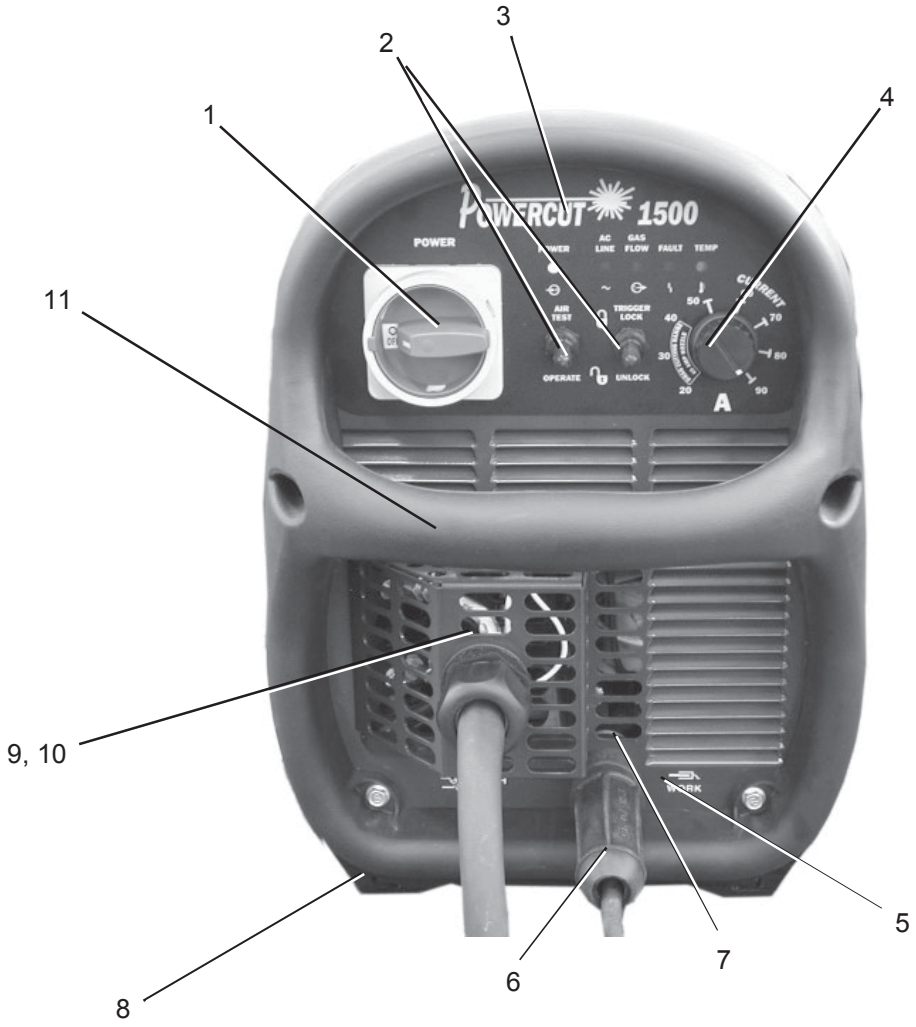
Replacement parts may be ordered from your ESAB distributor or from:

ESAB Welding & Cutting Products
Attn: Customer Service Dept.
P.O. Box 100545, 411 S. Ebenezer Road
Florence, SC 29501-0545

Be sure to indicate any special shipping instructions when ordering replacement parts.

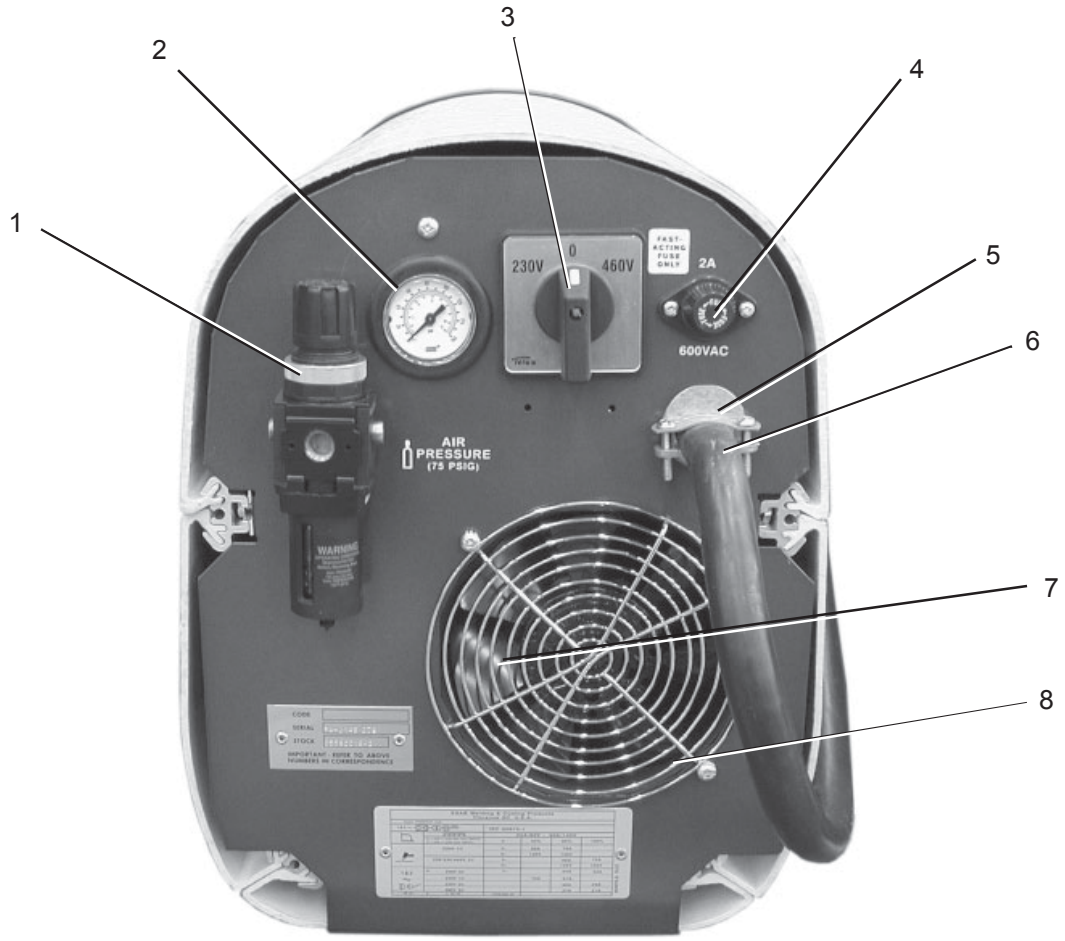
To order parts by phone, contact ESAB at 1-843-664-5540. Orders may also be faxed to 1-800-634-7548. Be sure to indicate any special shipping instructions when ordering replacement parts.

Refer to the Communication Guide located on the last page of this manual for a list of customer service phone numbers.



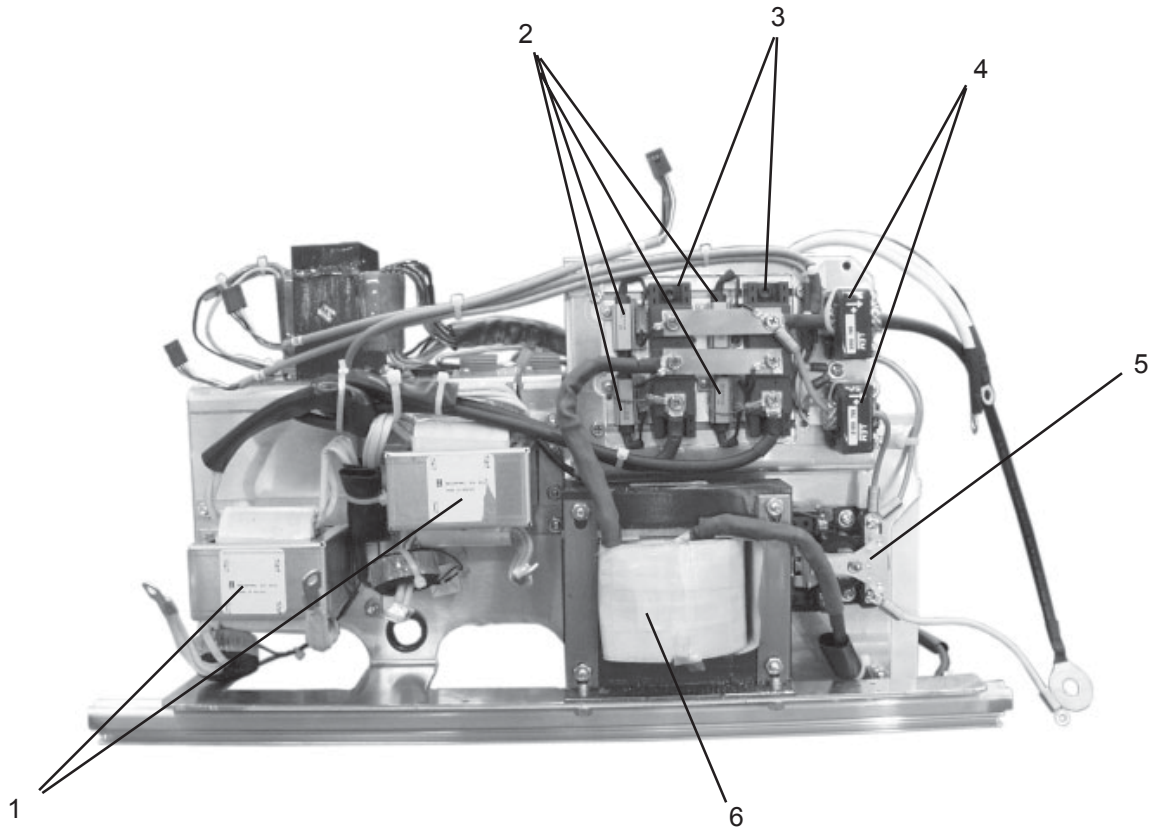
Front View - Powercut-1500

Item No.	Qty.	Part No.	Description	Symbol
1	1	36107	SW Pwr Disc 600V	S1
2	2	951474	Switch Seal Black	
3	1	954942	Overlay Front Panel Powercut-1500	
4	1	0558001818	Knob 1.37 Diam	
5	1	0558002461M	Panel Front	
6	1	0558003001	Work Cable #6 AWG	
7	1	13733935	Panel Receptacle	
8	2	0558002780	Foot Plasma Tube	
9	1	0558002581	Strain Relief Input NPT	
10	1	950435	Locknut, 1.00", Conduit Fitting	
11	1	0558002464M	Cover Torch Connection	



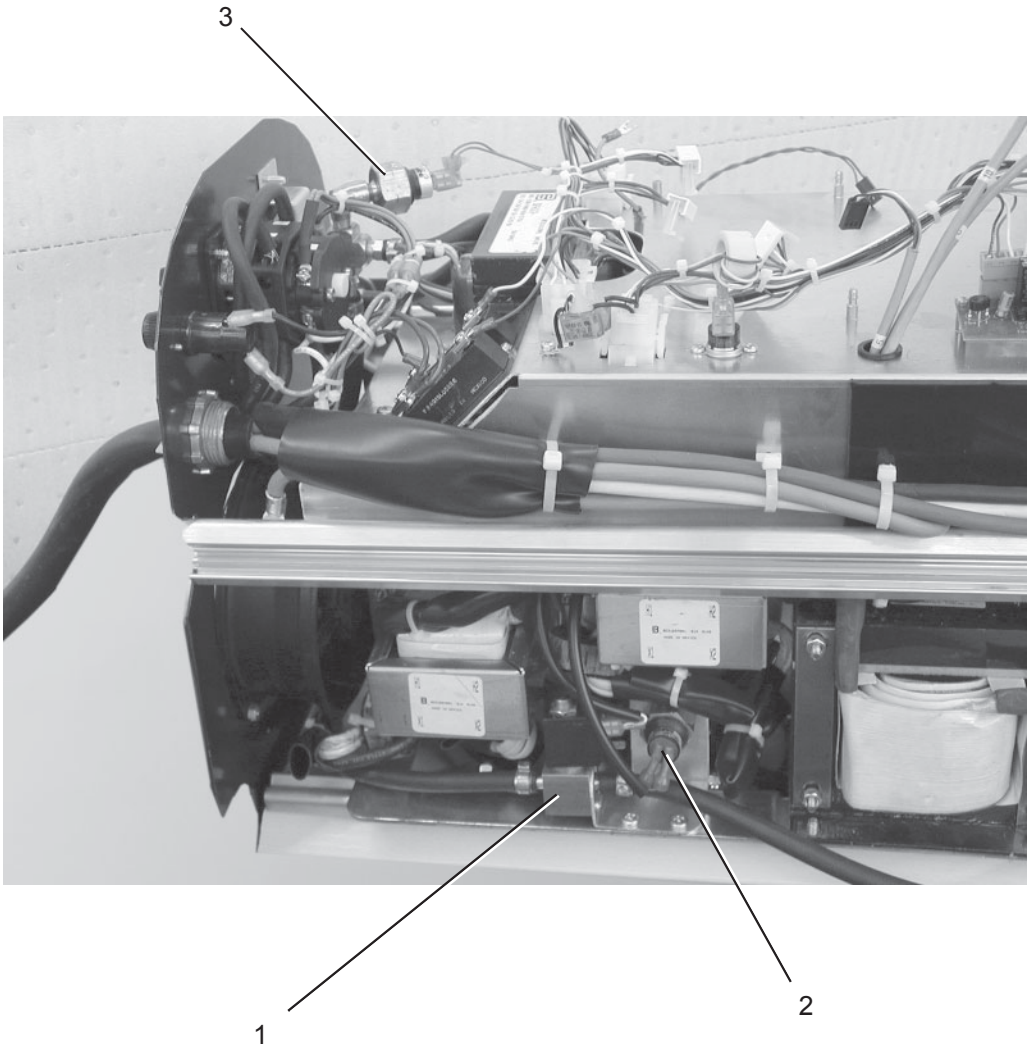
Rear View - Powercut-1500

Item No.	Qty.	Part No.	Description	Symbol
1	1	21710	Regulator Air Line *808-02	
2	1	21711	Gauge 1.50 *160 PSI WHT CB	
3	1	0558002446	Switch 40A	S2
4	1	0558003075	Fuse 2A 600VAC, Fast Acting Only	F1
5	1	97W63	Connector Cable Grip	
6	1	0558003002	Cable Input Power, 10Ft.	
7	1	951182	Fan 230V 50/60 Hz 233CFM	M1
8	1	0558002994	Finger Guard 1.5MM (.06 IN.)	



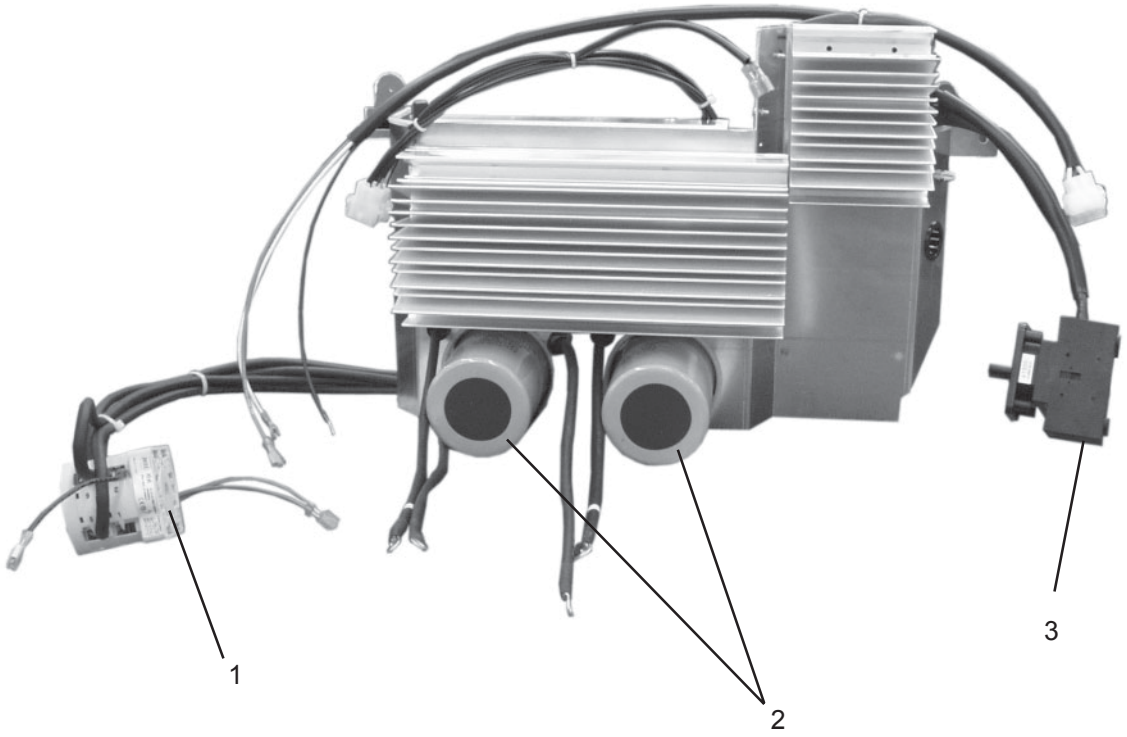
Internal View - Powercut-1500
Lower Left Side

Item No.	Qty.	Part No.	Description	Symbol
1	2	0558002447	Transformer Main	T2, T4
2	4	17721020	RES WWFAHT 25W 1% 20 OHMS	R12-15
3	2	951185	Diode Module FDS 100A 600V	D7, D8
4	2	952252	Transducer Current 100A	T5, T7
5	1	0558002576	Relay SPST 24V w/MAG	K2
6	1	0558002455	Inductor Output	L2



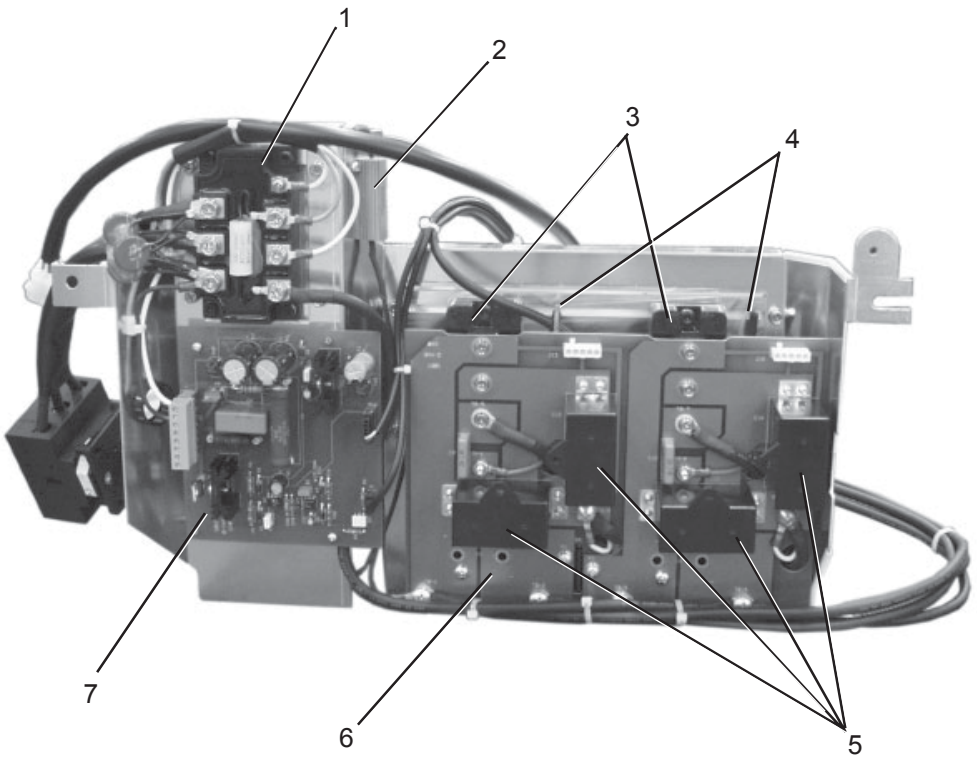
Internal View - Powercut-1500
Left Side Rear

Item No.	Qty.	Part No.	Description	Symbol
1	1	0558002482	SOL AY 1/8 NPTF Port 3/16 BARB	SOL1
2	1	0558002189	Switch Pressure .25 GPN	FS1
3	1	0558003105	Switch Pressure High	PS1



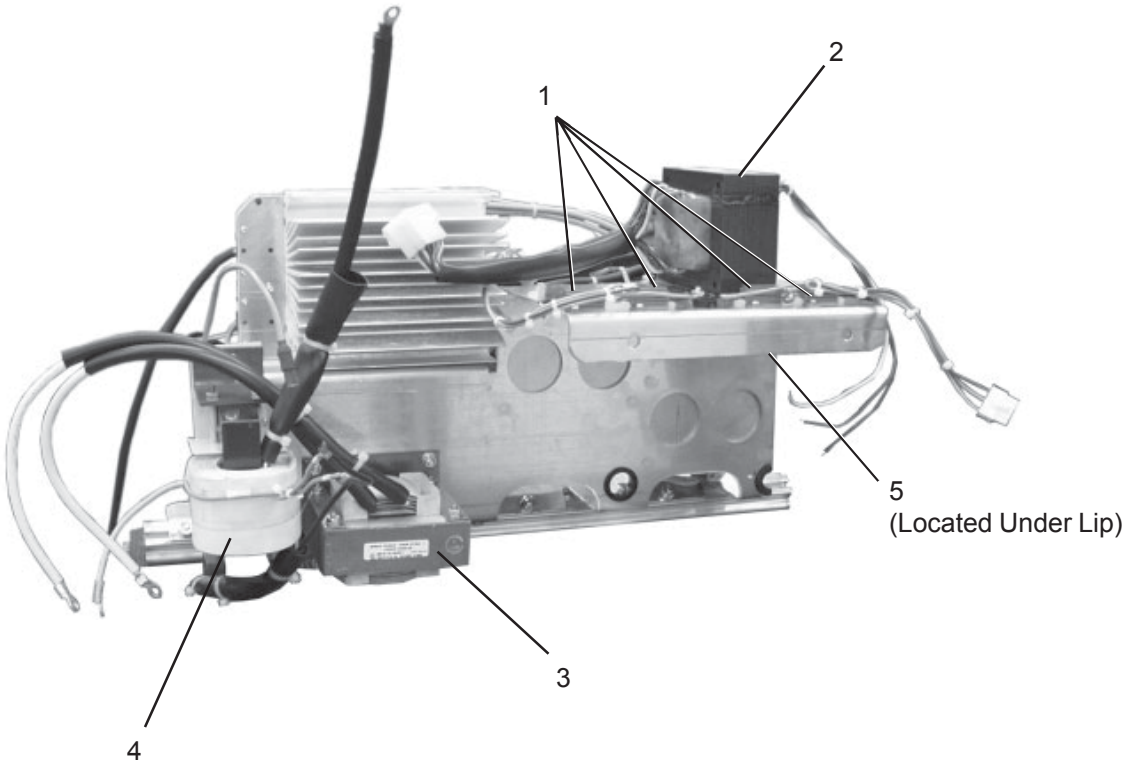
Internal View - Powercut-1500
Left Side Sub-Assembly

Item No.	Qty.	Part No.	Description	Symbol
1	1	0558002446	Switch 40A	S2
2	2	0558002435	CAP 3100 UF 450VDC Alum	C5, C6
3	1	36107	SW PWR* Disc 600V	S1



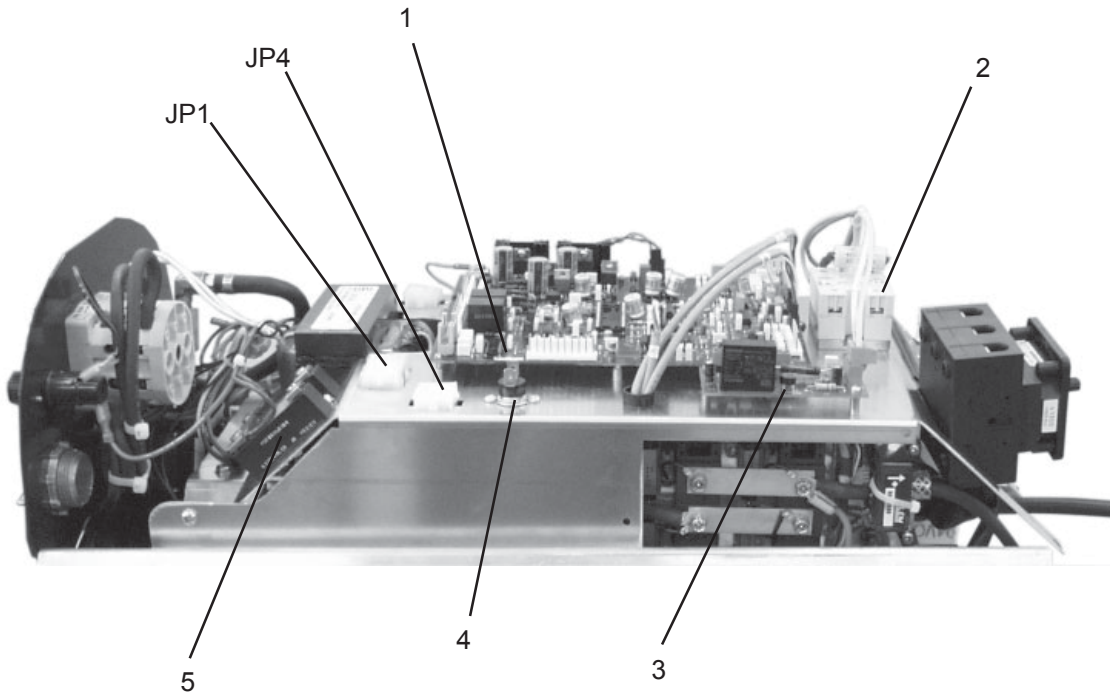
Internal View - Powercut-1500
Right Side

Item No.	Qty.	Part No.	Description	Symbol
1	1	0558002434	3PH BR Rect. w/out Thyristor	BR1
2	1	17750050	RES WW 50W 50 OHM	R1
3	2	0558003182	Module Dual IGBT 200A 600V	Q2, Q3
4	2	17750051	RES WW AHNI 50W 3%K 10 OHM	R6, R7
5	4	951161	CAPC Metpoly *20.0***UF 400VDC	C11-C14
6	1	38206	PCB Power	PCB5
7	1	38229	PCB HI Freq	PCB2



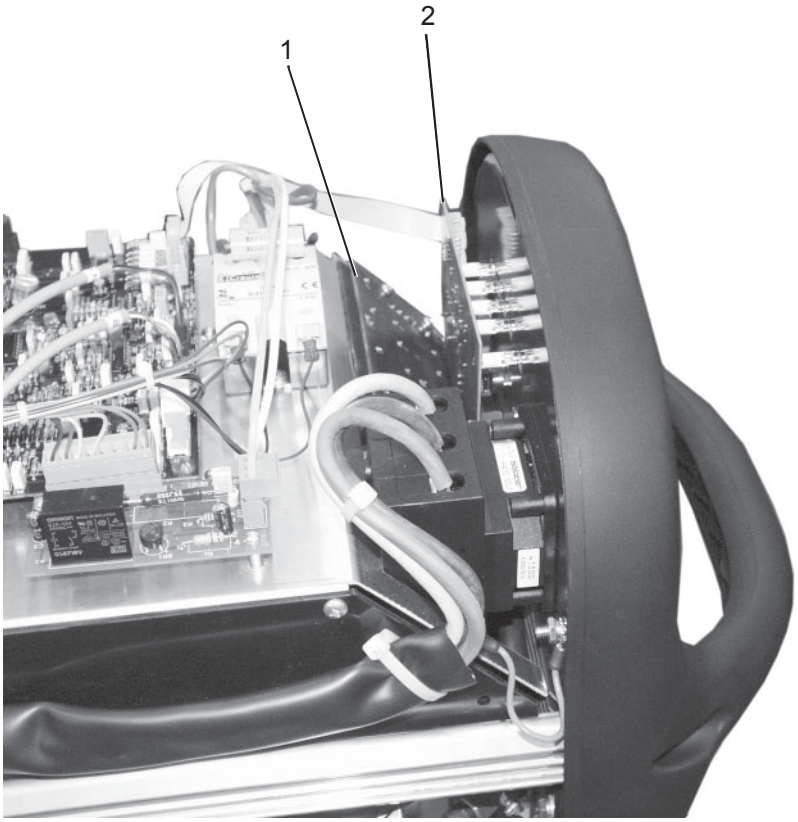
Internal View - Powercut-1500
Right Side Sub-Assembly

Item No.	Qty.	Part No.	Description	Symbol
1	4	17712502	RES WW AH** TT *25W *3% 5K OHMs	R8 - 11
2	1	0558002448	Transformer Control	T6
3	1	0558002438	Inductor Input	L1
4	1	0558002449	Transformer Hi Frequency	T8
5	1	38224	PCB IGBT Driver	PCB7



Upper Left Side Internal View - Powercut-1500

Item No.	Qty.	Part No.	Description	Symbol
1	1	38180	PCB Control	PCB1
2	1	952938	SCR 480V 18A Panel MNT	Q1
3	1	38208	PCB SCR Trigger	PCB4
4	1	950710	Switch Thermal 131°F	TS2
5	1	951818	Relay SS 3—32VDC/24—28VAC 25A	Q4



Internal View - Powercut-1500
Front Left Side

Item No.	Qty.	Part No.	Description	Symbol
1	1	38131	PCB Start-up Network	PCB6
2	1	38172	PCB Display	PCB3

Instruction Manual Changes

The "A" edition (3/02) of the manual covers the following:

1. Schematic Diagram upgraded from 0558003108 to 0558003108-A.
2. PCB Start-Up Network (P/N 38200) replaced with (P/N 38131) in parts list on page 34.

Revision C = Added P/N 950435 (Locknut) to Replacement Parts Page 37 - 10 / 2003

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